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BRITISH DENTAL
ASSOCIATION
23. RUSSELL SQUARE: W.C.1.

by
SONS,
QUARE
LONDON

THE

BRITISH JOURNAL

OF

DENTAL SCIENCE.

VOL. XIX.

JANUARY—DECEMBER, 1876.

LONDON:
J. & A. CHURCHILL, NEW BURLINGTON STREET.

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The following is a list of those gentlemen to whom we are chiefly indebted for original communications to this Journal during the present year:

E. BALDING.
F. H. BALKWILL, L.D.S.
JAMES BATE.
DR. CAV. CESARE CAMPANI.
ALFRED COLEMAN, F.R.C.S., L.D.S.
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CHARLES DE LESSERT, L.D.S.
A. M. DUFF, L.D.S.
TULLIUS W. FAY, M.R.C.S. Eng.
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DAVID FLETCHER.
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W. A. R. HUNT, M.R.C.S., L.R.C.P. Lond.
ALFRED JEPSON.
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W. V. MOORE, L.D.S., M.P.S.
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EIMERK SHOWLER.
NORTON A. SMALE, L.D.S.
JAMES STOCKEN, L.D.S.
J. SMITH TURNER, M.R.C.S., L.D.S.
THOMAS UNDERWOOD, L.D.S.
FRANCIS JOHN VANDERPANT.
THOMAS WALKER and SON.
W. SPENCER WATSON, F.R.C.S., B.M.
FELIX WEISS, L.D.S.
J. WOOD.

British Journal of Dental Science.

DENTAL CALENDAR.

1876.

A MEMORANDUM OF MEETINGS FOR THE YEAR

AND

RECORD OF PAST EVENTS IN THE HISTORY OF
DENTAL SURGERY.

PAST PRESIDENTS

OF THE

Odontological Society of Great Britain.

1856-7.—SAMUEL CARTWRIGHT, F.R.S.
1858.—JOHN H. PARKINSON, L.D.S.
1859.—ARNOLD ROGERS, F.R.C.S.Eng., L.D.S., &c.
1860.—WILLIAM A. HARRISON, F.R.C.S.Eng., L.D.S., &c.
1861.—WILLIAM MINSHULL BIGG, L.D.S.
1862.—JOHN TOMES, F.R.S., M.R.C.S.Eng., L.D.S., &c.
1863.—SAMUEL CARTWRIGHT, Jun., F.R.C.S.Eng., L.D.S., &c.
1864.—EDWIN SAUNDERS, F.R.C.S., &c.
1865.—THOMAS A. ROGERS, M.R.C.S.Eng., L.D.S., &c.
1866.—W. A. N. CATTLIN, F.R.C.S.Eng., L.D.S., &c.
1867.—GEORGE A. IBBETSON, F.R.C.S.Eng., L.D.S., &c.
1868.—JAMES PARKINSON, L.D.S.
1869.—HENRY JOHN BARRETT.
1870.—ROBERT HEPBURN, L.D.S.
1871.—JOHN R. MUMMERY, L.D.S.
1872.—THOMAS UNDERWOOD, L.D.S.
1873.—ISAAC SHEFFIELD, D.D.S.
1874.—EDWIN SERCOMBE, M.R.C.S.Eng., L.D.S., &c.
1875.—JOHN TOMES, F.R.S., M.R.C.S. Eng., L.D.S., &c.

1st Month. JANUARY. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
First Quarter ...	4	3	22 P.M.	Last Quarter ...	18	8	49 A.M.
Full Moon	11	6	23 A.M.	New Moon	26	1	41 P.M.

1	S	St. George's Hospital founded, 1733.
2	𝔖	SECOND SUNDAY AFTER CHRISTMAS. First Dinner of the Odontological Society held, 1858.
3	M	
4	TU	
5	W	First Meeting of the Odontological Society, 1857.
6	TH	Opening of First Students' Dental Society, 1863.
7	F	
8	S	Length of day 8 h.
9	𝔖	FIRST SUNDAY AFTER EPIPHANY.
10	M	*Odontological Society Annual Meeting.*
11	TU	
12	W	
13	TH	
14	F	
15	S	
16	𝔖	SECOND SUNDAY AFTER EPIPHANY.
17	M	*Dental Students' Society meets.*
18	TU	
19	W	
20	TH	
21	F	Horace Wells born, 1815.
22	S	
23	𝔖	THIRD SUNDAY AFTER EPIPHANY. Plymouth Dental Dispensary established, 1861.
24	M	
25	TU	
26	W	
27	TH	Liverpool Dental Hospital established, 1861.
28	F	Sir Humphrey Davy died, 1829.
29	S	Westminster Hospital founded, 1719.
30	𝔖	FOURTH SUNDAY AFTER EPIPHANY.
31	M	

Primary and Pass Examinations for the Diploma of Membership are held during this month.

2nd Month. FEBRUARY. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
First Quarter ...	3	1	53 A.M.	Last Quarter ...	17	4	56 A.M.
Full Moon	9	5	47 P.M.	New Moon	25	6	20 A.M.

1	Tu	
2	W	*Royal Microscopical Society Annual Meeting.*
3	Th	
4	F	
5	S	Length of day 9 h. 19 m.
6	𝕾	Fifth Sunday after Epiphany. Dr. Priestley, discoverer of Nitrous Oxide, died, 1804.
7	M	*Odontological Society meets.*
8	Tu	
9	W	
10	Th	Birmingham Dental Hospital opened, 1858.
11	F	
12	S	Address by Mr. C. S. Tomes, Harvard University, Boston, U.S., 1873. Hunterian Oration, Royal College of Surgeons.
13	𝕾	Septuagesima Sunday.
14	M	*Dental Students' Society meets.*
15	Tu	
16	W	
17	Th	
18	F	
19	S	
20	𝕾	Sexagesima Sunday. The London Dental Dispensary opened, 1855.
21	M	
22	Tu	
23	W	
24	Th	
25	F	Second Dental Students' Society founded, 1870.
26	S	
27	𝕾	Quinquagesima Sunday.
28	M	
29	Tu	Shrove Tuesday.

The Lectures of the Professor of Comparative Anatomy and Physiology of the Royal College of Surgeons (Hunterian) are delivered during this and the following month.

3rd Month. **MARCH.** 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
First Quarter ...	3	9	48 A.M.	Last Quarter ...	18	1	24 A.M.
Full Moon	10	6	12 A.M.	New Moon	25	8	12 P.M.

1	W	Ash Wednesday. *Royal Microscopical Society meets.*
2	Th	Conversazione on 1st Meeting of Odon. Soc. at Den. Hos.,
3	F	Leicester Sq., 1874.
4	S	
5	𝔖	First Sunday in Lent. Edinburgh Dental Dispensary
6	M	*Odontological Society meets.* [opened, 1860.
7	Tu	
8	W	Ember Day.
9	Th	
10	F	*Odonto-Chirurgical Society meets.*
11	S	St. Thomas's Hospital founded, 1553.
12	𝔖	Second Sunday in Lent. Inaugural Dinner on Opening of the Dental Hospital, Leicester Square, 1874.
13	M	*Dental Students' Society meets.* First Dinner of L.D.S. at
14	Tu	Albion Tavern, 1861; ditto at Edinburgh, 1866.
15	W	
16	Th	
17	F	St. Patrick's Day.
18	S	Mr. Arnold Rogers, 3rd Pres. of the Odon. Soc., died, 1870.
19	𝔖	Third Sunday in Lent. Special Meeting of Odonto- logical Society in reference to amalgamation with College
20	M	Dissolut. of the Coll. of Dentists, 1863. [of Dentists, 1863.
21	Tu	
22	W	
23	Th	
24	F	[Opening of the Dent. Hos., Leicester Sq.
25	S	Annunciation. Lady-Day. Concert in Commemoration of
26	𝔖	Fourth Sunday in Lent.
27	M	
28	Tu	
29	W	
30	Th	
31	F	Wm. Hunter died, 1783. Second Registration R. C. S. closes.

The Lectures of the Professor of Comparative Anatomy and Physiology at the Royal College of Surgeons (Hunterian) are delivered during this and the previous month.

4th Month. APRIL. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
First Quarter ...	1	4	12 P.M.	New Moon	24	7	3 A.M.
Full Moon	8	7	39 P.M.	First Quarter ...	30	10	27 P.M.
Last Quarter ...	16	8	37 P.M.				

1	S	Dr. Harvey born, 1578.
2	𝔖	Fifth Sunday in Lent.
3	M	*Odontological Society meets.* Dr. Abernethy born, 1764.
4	Tu	
5	W	*Royal Microscopical Society meets.*
6	Th	Mr. J. H. Parkinson, 2nd President of the Odontological Society, died, 1865.
7	F	
8	S	
9	𝔖	Palm Sunday. Guy's Hospital founded, 1721.
10	M	*Dental Students' Society meets.*
11	Tu	
12	W	
13	Th	
14	F	Good Friday. Mr. Edwin Sercombe, 18th President of
15	S	[the Odontological Society, died, 1875.
16	𝔖	Easter Sunday.
17	M	
18	Tu	
19	W	
20	Th	Fox's first Work on the Teeth published, 1803.
21	F	
22	S	
23	𝔖	Low Sunday. Mr. W. A. Harrison, 4th President of the Odontological Society, died, 1873.
24	M	
25	Tu	
26	W	
27	Th	
28	F	
29	S	
30	𝔖	Second Sunday after Easter. London School of Dental Surgery established, 1860.

Primary and Pass Examinations for the Diploma of Membership are held during this month.

5TH MONTH. MAY. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon	8	9	53 A.M.	New Moon	23	3	25 P.M.
Last Quarter ...	16	1	27 P.M.	First Quarter ...	30	5	48 A.M.

1	M	*Odontological Society meets.* Summer Session begins.
2	Tu	
3	W	*Royal Microscopical Society meets.*
4	Th	
5	F	
6	S	
7	𝕾	THIRD SUNDAY AFTER EASTER.
8	M	
9	Tu	
10	W	
11	Th	
12	F	
13	S	
14	𝕾	FOURTH SUNDAY AFTER EASTER. Oxford Term ends.
15	M	
16	Tu	
17	W	
18	Th	
19	F	King's College Hospital established, 1839.
20	S	
21	𝕾	ROGATION SUNDAY.
22	M	
23	Tu	
24	W	
25	Th	ASCENSION DAY.
26	F	
27	S	
28	𝕾	SUNDAY AFTER ASCENSION.
29	M	
30	Tu	
31	W	

Primary and Pass Examinations for the Diploma of Membership, and the Professional Examination for the Fellowship, are held during this month.

6th Month. JUNE. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon	7	0	37 A.M.	New Moon	21	10	17 P.M.
Last Quarter ...	15	3	15 A.M.	First Quarter ...	28	3	14 P.M.

1	Th	
2	F	
3	S	Conversazione at the Dental Hospital of London, 1875.
4	𝔖	Whit Sunday.
5	M	
6	Tu	
7	W	*Royal Microscopical Society meets.*
8	Th	
9	F	Sir Benjamin Brodie born, 1783.
10	S	
11	𝔖	Trinity Sunday. Samuel Cartwright, F.R.S., 1st President of the Odontological Society, died, 1864.
12	M	*Odontological Society meets.* [Last Meeting of the Session.]
13	Tu	
14	W	
15	Th	
16	F	
17	S	Middlesex Hospital founded, 1745.
18	𝔖	First Sunday after Trinity.
19	M	
20	Tu	
21	W	
22	Th	
23	F	
24	S	
25	𝔖	Second Sunday after Trinity.
26	M	
27	Tu	St. Mary's Hospital founded, 1845.
28	W	
29	Th	
30	F	

The Lectures of the Professor of Surgery and Pathology, and of the Lectures on Anatomy and Physiology, are generally delivered during this month.

7TH MONTH. JULY. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon	6	3	38 P.M.	New Moon	21	4	53 A.M.
Last Quarter ...	14	1	56 P.M.	First Quarter ...	28	3	19 A.M.

1	S	BRITISH JOURNAL OF DENTAL SCIENCE first published, [July, 1856.
2	𝔖	THIRD SUNDAY AFTER TRINITY.
3	M	
4	TU	
5	W	
6	TH	
7	F	
8	S	
9	𝔖	FOURTH SUNDAY AFTER TRINITY. Revision of Examinations for Dental Diploma for Dentists in Practice, &c., prior to 1859.
10	M	Plymouth Dental Dispensary opened, 1861.
11	TU	
12	W	
13	TH	
14	F	
15	S	ST. SWITHIN'S DAY.
16	𝔖	FIFTH SUNDAY AFTER TRINITY. Putman's Vulcanizer patented in England, 1858.
17	M	
18	TU	
19	W	
20	TH	
21	F	
22	S	
23	𝔖	SIXTH SUNDAY AFTER TRINITY.
24	M	
25	TU	
26	W	
27	TH	
28	F	
29	S	
30	𝔖	SEVENTH SUNDAY AFTER TRINITY.
31	M	Summer Session ends.

Primary and Pass Examinations for the Diploma of Membership are held during this month.

Odonto-Chirurgical Society of Scotland meets about the middle of this month.

8th Month. AUGUST. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon	4	6	38 A.M.	New Moon	19	0	26 P.M.
Last Quarter ...	12	9	58 P.M.	First Quarter ...	26	6	17 P.M.

1	Tu	
2	W	
3	Th	
4	F	
5	S	Central Society of German Dentists founded, 1860.
6	𝕾	Eighth Sunday after Trinity.
7	M	
8	Tu	
9	W	
10	Th	
11	F	
12	S	E. P. B. Bromley died, 1875.
13	𝕾	Ninth Sunday after Trinity.
14	M	
15	Tu	
16	W	
17	Th	
18	F	
19	S	
20	𝕾	Tenth Sunday after Trinity. Professor Quekett died, 1861.
21	M	
22	Tu	
23	W	
24	Th	
25	F	Professor Faraday died, 1867.
26	S	
27	𝕾	Eleventh Sunday after Trinity.
28	M	
29	Tu	
30	W	
31	Th	Dental Reform Meeting at Manchester, 1875.

9th Month. SEPTEMBER. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon	3	9	13 P.M.	New Moon	17	8	54 P.M.
Last Quarter ...	11	4	21 A.M.	First Quarter ...	25	0	3 P.M.

1	F	
2	S	Library and Museum of the Royal College of Surgeons close.
3	𝕾	Twelfth Sunday after Trinity.
4	M	
5	Tu	
6	W	
7	Th	
8	F	Dental Charter granted to the Royal College of Surgeons, 1859.
9	S	
10	𝕾	Thirteenth Sunday after Trinity.
11	M	
12	Tu	
13	W	
14	Th	
15	F	Charing Cross Hospital founded, 1818.
16	S	
17	𝕾	Fourteenth Sunday after Trinity.
18	M	
19	Tu	
20	W	
21	Th	
22	F	Meeting held at London Tavern, Bishopsgate Street, for the establishment of the College of Dentists, 1856.
23	S	
24	𝕾	
25	M	
26	Tu	Fifteenth Sunday after Trinity.
27	W	
28	Th	
29	F	Michaelmas Day.
30	S	

10TH MONTH. OCTOBER. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon ……	3	10	56 A.M.	New Moon ……	17	9	57 A.M.
Last Quarter …	10	10	19 A.M.	First Quarter …	25	7	55 A.M.

1	𝕾	SIXTEENTH SUNDAY AFTER TRINITY.
2	M	Winter Session and Registration of the Royal College of Surgeons commence. Library and Museum open.
3	TU	Mr. W. M. Bigg, 5th Pres. of the Odont. Soc., died, 1867.
4	W	Distribution of Prizes at the Dental Hosp. of London, 1875.
5	TH	First Public distribution of Prizes to Students at Dental Hospital, Leicester Square, 1874.
6	F	
7	S	
8	𝕾	SEVENTEENTH SUNDAY AFTER TRINITY.
9	M	*Dental Students' Society meets.*
10	TU	
11	W	
12	TH	
13	F	
14	S	Registration of Royal College of Surgeons closes.
15	𝕾	EIGHTEENTH SUNDAY AFTER TRINITY. London Hospital founded, 1740; rebuilt, 1752.
16	M	
17	TU	
18	W	
19	TH	
20	F	
21	S	
22	𝕾	NINETEENTH SUNDAY AFTER TRINITY.
23	M	
24	TU	
25	W	
26	TH	
27	F	
28	S	
29	𝕾	TWENTIETH SUNDAY AFTER TRINITY.
30	M	
31	TU	

It is important that Students at the London School should attend at the Royal College of Surgeons between the 1st and 15th, to register their Hospital Cards, according to the regulations.

11th Month. NOVEMBER. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon	1	11	31 P.M.	New Moon	16	0	48 A.M.
Last Quarter ...	8	5	17 P.M.	First Quarter ...	24	4	27 A.M.

1	W	*Royal Microscopical Society meets.*
2	Th	
3	F	
4	S	
5	𝕾	Twenty-first Sunday after Trinity.
6	M	*Odontological Society meets.*
7	Tu	
8	W	
9	Th	
10	F	Odontological Society established, 1856.
11	S	National Dental Hospital opened, 1861.
12	𝕾	Twenty-second Sunday after Trinity.
13	M	*Dental Students' Society meets.*
14	Tu	
15	W	
16	Th	
17	F	St. Bartholomew's Hospital founded by Rahere, 1123; suppressed by Henry VIII, 1537; refounded by Sir T. Gresham, Lord Mayor of London, 1544.
18	S	
19	𝕾	Twenty-third Sunday after Trinity.
20	M	
21	Tu	
22	W	
23	Th	
24	F	
25	S	
26	𝕾	Twenty-fourth Sunday after Trinity.
27	M	
28	Tu	
29	W	
30	Th	

Primary and Pass Examinations for the Membership, and the Professional Examination for the Fellowship, are held during this month by the Royal College of Surgeons.

Odonto-Chirurgical Society of Scotland meets about the middle of this month.

12th Month. DECEMBER. 1876.

PHASES OF THE MOON.

	D.	H.	M.		D.	H.	M.
Full Moon	1	11	4 A.M.	First Quarter ...	23	11	42 P.M.
Last Quarter ...	8	2	23 A.M.	Full Moon	30	9	59 P.M.
New Moon	15	6	14 P.M.				

1	F	Dental Hospital of London opened, 1858.
2	S	
3	𝔖	FIRST SUNDAY IN ADVENT.
4	M	*Odontological Society meets.*
5	Tu	
6	W	*Royal Microscopical Society meets.*
7	Th	
8	F	
9	S	First Institution for Diseases of the Teeth established by Mr. Harrison and Mr. Saunders, 1839.
10	𝔖	SECOND SUNDAY IN ADVENT.
11	M	*Dental Students' Society meets.* Nitrous Oxide first used as an Anæsthetic by Horace Wells and Dr. Colton, 1844.
12	Tu	
13	W	
14	Th	Admis. to Library, Museum, and Lectures, first granted to L.D.S. by Royal College of Surgeons, 1871.
15	F	
16	S	College of Dentists opened, 1859.
17	𝔖	THIRD SUNDAY IN ADVENT. Sir Humphrey Davy born, 1779.
18	M	
19	Tu	
20	W	
21	Th	
22	F	
23	S	Fox's second Work on the Teeth published, 1805.
24	𝔖	FOURTH SUNDAY IN ADVENT.
25	M	CHRISTMAS DAY.
26	Tu	Bank Holiday.
27	W	
28	Th	
29	F	
30	S	
31	𝔖	FIRST SUNDAY AFTER CHRISTMAS.

The Preliminary Examinations for the Diplomas of Fellowship and Membership is held by the Royal College of Surgeons in this month.

British Journal of Dental Science.

No. 235. LONDON, JANUARY, 1876. Vol. XIX.

Dental Surgery and Medicine.

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, L.D.S.

Introductory.

In glancing at the labours of more than a quarter of a century, with all its variety of incidents, experiences, successes, and failures, I feel half inclined, at first, to believe that there is but little that is really new in our modern treatment of disease, and that our facts, in the main, have during the past fifty years, been but sparingly added to.

Our daily practice appears at a first glance to be made up of the same cases with some slight modification, the same treatment with perhaps some trifling improvement; and while the whole world goes on repeating itself, we are irresistibly drawn to the conclusion that, after all, we are but as miners turning up the rich soil of past experience, to lay down another layer that an after-generation will perhaps exhume; picking out a fact here, and disputing an inference there, but with all making up the bulk of our daily toil by repeating over and over again the same words, giving the same advice, and following out very nearly the same treatment.

This is the impression that a cursory glance at a case-book is likely to produce, but upon a nearer examination our views will be considerably modified. We never have stood still, and we never can stand still, in our research after truth; and although all our cases may appear when hastily examined to be very much alike, they none of them present exactly the same characteristics, and in noticing those little varieties we glean a valuable harvest of mites that, united, become mountains of experience.

We are all of us too prone, I fear, to dwell upon our successes, and it is but natural that we should; but I cannot help thinking that if we were as ready to communicate our failures, the gain to physical science would be very considerable. The great truths in chemistry and many other sciences have mainly been determined by failures, and we never can make a mistake without learning something worth remembering if we only carefully examine the results.

In compiling these notes I wish it to be distinctly understood that I am not attempting any elaborate treatise abounding in technicalities: I am trying simply to relate the particulars of those cases that have come to my knowledge and that appear to me to be somewhat out of the beaten track. I am not, as may be imagined, overwhelmed by a variety of subjects, but shall confine myself to a few well-defined observations that I think it may be profitable to record; and although my experience runs over a good many years, yet I must throw myself upon the indulgence of the reader for much that perhaps might have been more lucidly illustrated. In every case I have tried to keep strictly to the facts as they presented themselves to me, and although they may in some instances appear trival, to the student at least they will present some novelty.

In the earliest days of my apprentice life an incident occurred that stamped upon my memory one of its first lessons: that although certain organs may appear to the uneducated alike, they have an infinite variety of forms. We are accustomed to behold in our race faces that all possess some distinctive diversity: no two are exactly alike. At least, the exceptions are so rare we are quite warranted in saying so. Upon a closer examination we know that the same diversity shows itself in the hands, the nails, the teeth, and other portions of our economy. The incident I am about to relate will serve to introduce one part of my subject.

In those early days mineral teeth were only to be obtained of the crudest description, and our practice in the mechanical department was confined principally to setting up natural teeth. A piece of work was being constructed for which two central incisors were required. In looking through our stock one was discovered that suited admirably, but a companion could not be found. I was therefore despatched to a fellow-practitioner in the neighbourhood, to see whether from his stook he could furnish us with a natural tooth to go with that we possessed. The gentleman I was directed to call upon very carefully looked through his collection, and at length, after examining many, took up one and placed it side by side with the central I had brought.

I shall never forget his puzzled expression as he said, "This is very remarkable. I feel persuaded that these two teeth have come out of the same head."

As I could not give him any information where the tooth I had brought had been obtained, he dismissed me, merely observing that my master was fortunate in being so readily suited.

On my way back to my employers the words I had just heard occurred to me over and over again. "Is it possible," I said to myself, "that experience can make any one capable of distinguishing amongst a boxful the very teeth that have been erupted together?" I determined, however, to remain silent, and hear what was said upon my return, as my master, being a man of considerable experience, and an M.R.C.S., I felt convinced he would be able to verify or contradict the statement made.

"I think the tooth has been very well matched," I said.

"Matched!" he cried, after placing them side by side, and looking at them very carefully for some time. "It is simply wonderful, for I am as sure as I am of my existence that these two teeth have been developed in the same jaw."

My astonishment was very great, and my curiosity being excited, I begged to be informed how these conclusions were so positively arrived at. My instructor took the teeth one by one, and explained their points of similarity, until at length I felt as persuaded as he himself was that they had both come out of the same mouth. I, however, determined to prosecute the inquiry still further. I got to know the name of the traveller from whom the first tooth had been purchased, and then discovered that the same person had also sold a parcel of teeth to the gentleman who had succeeded in matching it for us.

There is nothing very remarkable in this little anecdote, as most Dental surgeons familiar with natural teeth can testify, but it illustrates the fact that a strong family resemblance runs through all teeth in the same head, and that we cannot too carefully make ourselves thoroughly acquainted with their general character, both as regards size, shape, and arrangement in the mouth.

Hereditary Peculiarities.

It has been frequently remarked that many parts of our system carry with them such distinct hereditary resemblances the least observant cannot fail to notice them. Looking at the hands of children, for instance, we see a peculiar form of nail resembling the one parent or the other passing from generation to generation. These resemblances are not confined to mere form, but may be traced in a variety of ways. Peculiarities of locomotion so distinct that the walk of the child is the counterpart of the walk of the parent. No class of organs, however, bear more closely the family characteristics than the teeth. Not only do we find peculiarities of arrangement as to position, hereditary irregularities and transmission of out-of-the-way shapes, but also distinctly marked cases where caries has destroyed particular teeth that had been attacked at very nearly the same age in the parent. Chronic inflammation of the dental periosteum, causing the loss of one tooth after the other, transmitted from parent to child, and as distinctly traceable to hereditary causes, as gout, rheumatism, &c. The following cases will, I think, bear out these views :

I. *Hereditary Peculiarities in Shape.*—When first I examined the mouth of Mr. J. M— he had three upper molars standing. They were powerful, square looking teeth, and distinguished by a well-defined cusp on the lingual side. Such a form of tooth is not unusual, but the cusp in this instance sprang nearly from the middle of the tooth, and was so distinctive in its character that it looked like a small canine growing out from the side. At the present moment I have six of the children under my care, and four of them have the same cusp springing from all the upper molars. In two of the boys they are more developed than in the others, but they are all of them sufficiently distinctive to be remarkable. The lower molars are perfectly flat on the lingual side, although rather large teeth, with strongly marked cusps on the masticating surface.

L. L— and M. L—, mother and daughter, have both of them conical crowns of enamel, very similar in appearance to the supernumerary tooth so frequently met with, instead of superior lateral incisors. The teeth are all of them turned slightly inwards, but in other respects cannot be said to cause much disfigurement.

HINTS BY AN OLD DENTIST.

(*Continued from Vol. XVIII, p.* 640.)

What then is to be done to prevent inflammation of the periosteum and the whole train of consequent evils? The first answer is, of course, not to allow, if possible, the pulp to get exposed; and the second, that when exposed every effort known in the Dental art should be made to prevent inflammation in this structure. But these are matters not connected with the one under consideration. Our inquiry is confined to the treatment of the pulp when it is hopeless to expect any effort will succeed in preserving its healthy condition, and to the course to be pursued when the pulp has suppurated. And, furthermore, to determine what should be done when the periosteum has become the seat of disease.

Allowing that the vitality of the cementum and periosteum is independent of the pulp, when a healthy pulp is hopelessly exposed, if we destroy its vitality in any manner which does not interfere with either of these structures and then entirely remove the pulp before any suppuration takes place and fill the pulp cavity with a substance which does not effect the remaining living organisations, what is to prevent these organisations continuing in the same healthy condition as before? I do not dispute that it is true that the loss of the vitality of one part somewhat affects the neighbouring parts; but there is no doubt that after the removal of the pulp, the cementum and periosteum remain in, at least, a comparatively healthy condition. And this is the principle upon which fang-filling is based.

After these perhaps too lengthy statements I will endeavour to describe the preparation of the root for filling. We find it presented for treatment under different conditions. First, the healthy pulp just exposed; second, the pulp devitalized, but the periosteum as yet giving no indication of irritation; third, the periosteum in active inflammation. There are also two stages in the latter condition: the first, when the inflammation has just began; and the second, when the pus has found no outlet in the gum-boil.

In the case of an exposed pulp, the first thing is, in common parlance, to "kill the nerve." There are two ways among Dentists of accomplishing this; namely, by the use of the probe, and the application of an escharotic. When possible, the probe may be used, for it saves time and is thoroughly effective. Its use is too well known to require description. But a pertinent objection to this mode of treating an exposed pulp is the pain it frequently gives. Many Dentists contend that *if* we use a sharp instrument, and *if* we operate quickly, the pain is slight. But, as the great dramatist says, "Much virtue in an *if*." The pain is almost universally very severe, do what we may, and oftentimes it is most excrutiating. When this is the case the more prudent course is to apply arsenic mixed with creasote and morphia, to which some Dentists add a very small quantity of aconitine. It is objected to the arsenic that it is absorbed into the other structures and eventually produces irritation in the periosteum. This is too often true; but I maintain that it is owing to the quantity which is introduced into the tooth. It is by no means infrequent to find ten times—and I have known a hundred times—more arsenic used than is required. One hundredth part of a grain of this acid will destroy the vitality of a pulp; and from a thirtieth to a fiftieth part of a grain is all that is necessary. The best mode of intoducing the arsenic is to excavate the cavity sufficiently to just expose the pulp, taking great care not to thrust the instrument into it, and giving thereby unnecessary pain, and at some point laying bare the sound dentine. If pain ensues, which is very probable, apply creasote to the exposed nerve, and leave it in the tooth until the pain subsides and all the arrangements are made for applying the escharotic. Then saturate a small piece of cotton with creasote and take upon it the required amount of arsenic, mixed with about the same quantity of morphia, and at the same time saturate a larger piece of cotton with creasote. Having arranged to keep the tooth dry until the operation is completed, carefully remove the cotton in the cavity, dry it out with paper, and first apply the pure creasote directly upon the exposed nerve, being careful not to press upon it and thereby renew the pain, and then apply the pledget of cotton containing the arsenic and morphia to the exposed dentine—there is no necessity for putting it directly upon the exposed pulp, and from what is here said it will be apparent that this treatment is one cause of the great pain often experienced by the patient — and securely cover with some sort of filling. Various articles are used for this purpose, but the best is plaster of Paris introduced when just ready to *set* and kept free from the fluids of the mouth until this has taken place. In using wax, Hill's stopping, and other like materials, pressure is almost unavoidable; but plaster may be introduced so as to exert little or no pressure; and when this is done, in a majority of cases no pain will be experienced. If the operation has been properly performed, the death of the nerve is certain to follow. The arsenic should be removed within twenty-four hours' time, for there are some teeth in which it is so rapidly absorbed that if allowed to remain too long they assume first a reddish colour and then become unusually dark and lifeless in appearance. It will frequently be found that the pulp is not altogether without sensation when the arsenic is removed; but if it has come distinctly in contact with the dentine there is no doubt of the ultimate result. If the patient can bear it, the pulp should be removed at once; but if the pain is too severe it is better to remove all that is possible and fill the cavity temporarily and wait a few days, when the sensation will have departed and the operation can be proceeded with.

In removing the pulp it is not necessary to go beyond the dentine. When the cementum is penetrated to any extent, injury rather than good is the result. Many writers strongly insist upon the extirpation of the pulp to the very end of the root, but from what has been said it is evident that we do not want to interfere with the cementum more than is absolutely necessary. Above all, in removing the pulp no injury should be done to the periosteum. Merely penetrating it may possibly not be fatal to success; but to push the filling up to, or to come in contact with the periosteum is almost certain to cause incurable inflammation. The pulp of a recently devitalized tooth entirely removed, the root is ready for filling.

The next case to consider is that of a tooth which has been for some time devitalized, but has as yet given the patient no evidence of irritation in the periosteum. On opening into the root we shall, in all probability, find a strong stench and perhaps a deposit of pus. Although no pain has been hitherto felt in the tooth, the proceeding now described will very probably cause active inflammation in the periosteum and consequent pain; but if the tooth is worth saving this should not cause discouragement; and having warned the patient of what is probable, the operator may proceed to remove all the decay and enlarge the pulp cavity so as to have a free opening into the root. Then carry the broach far enough into the root to get to the end of the cavity and remove all foreign and purulent matter; after which thoroughly syringe out the cavity with tepid water and apply an agent which is both antiseptic and antibromic. Many preparations are used by Dentists for this purpose, but nothing, in my opinion, equals genuine wood creasote applied on a pledget of cotton; and to this agent I advise the young Dentist to confine himself, as it is both safe and efficacious. Some writers advise that the pledget be carried as far up the cavity as possible, but I particularly advise the opposite treatment. The case under consideration is not one where the requirement is altogether the direct application of a remedy to prutridity, but it is the odour of the antibromic penetrating beyond its location which most affects the diseased part; consequently, the creasote, which has both the qualities required, once in the cavity and so securely covered over that it cannot escape, performs all which is possible. Moreover, it is better to have a little space at the upper end of the root; for if pus does accumulate, there is less liability to pain. Some writers recommend the introduction of the antiseptic in floss silk. What peculiar virtue there is in this article I cannot imagine. If a Dentist is particularly anxious to appear *nice*, there are plenty of legitimate ways without resorting to any of these little eccentricities. Another reason why it is best not to ram the cotton into the very end of the root is, that it is difficult to remove it. When the pledget is introduced into the cavity, a filling of either tin-foil, Hill's stopping, or the like—I always use the former article—must be put over it so as to retain it in place and prevent the escape of the creasote. If possible it is best to renew the creasote every other day; and at any rate this should be done, at the very least, once a week. If active inflammation in the periosteum ensues, it will be necessary to remove the filling and creasote, and leave the cavity open for a time, so that the pus, and especially the gases generated thereby, may discharge freely; else there will be great irritation and pain, and the only escape for the pus will be through the gums. When the normal state of things has returned, the treatment may be renewed and continued until a cure is effected.

THE WET PACKING TEST.

In the abstract of proceedings of the Odontological Society, published in the 'British Journal of Dental Science' for December, page 654, I am made to say that water-tight fillings can be made of the worst amalgams in tubes; the results being different to those obtained in teeth. Will you allow me *most distinctly to deny ever having made such a statement.* The only difference I have ever found between glass tubes and teeth is that I get better results in the latter, both in and out of the mouth, when the same care is taken in both cases. The smooth polished surface of a tube is exceedingly difficult to pack fairly against, and the slightest imperfection shows much more plainly in glass than in ivory or bone. As the wet packing test is the only one which will precisely reproduce the failures in the mouth and show the effect of moisture interference on any plastic filling, it cannot well be discarded. I have never confined myself specially to the use of glass tubes in testing as would be understood from the article referred to; but have made *thousands* of experimental plugs in and out of the mouth in teeth, and also in ivory bone and glass cavities.

Further than this. I have been in the habit of working with bars and micrometer measurements until I found, like Drs. Bogue and Hitchcock, that there was no agreement between this test and the packing test, and no resemblance whatever between the results in the mouth and linear expansion or contraction. The packing test, if used with judgment, is certainly the best we yet have, and approaches the nearest to practical every-day working conditions, but if used in absolutely dry cavities, whether they be glass, ivory, bone, or anything else, it is simply a delusion, and any experimenter who relies on a dry packing test alone might with ease employ his time better.

Thomas Fletcher.

Mechanical Dentistry.

ON REGULATION PLATES.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

In the 'Proceedings of the Odontological Society' for February, 1874, appears a paper by Mr. Caleb Williams on a method of working vulcanite by packing directly on the model instead of preparing a wax core, flasking, and pressing as usually done. This paper seems hardly to have met with the attention it deserves. To it I am indebted for the following way of packing regulating pieces, to which it is especially adapted.

The plaster model is not dipped in wax but dried, and, whilst warm, coated by a camel's-hair pencil with a chloroform solution of uncooked rubber. I generally use the "whalebone." This coat is laid on whilst the model is warm to promote the evaporation of the chloroform, which makes the rubber spongy if any remains; the solution should be carried wherever the plate is intended to go.

A pattern in sheet lead having been previously prepared a plate is cut by it out of the soft rubber, which is placed upon the model and carefully pressed with the forefinger into all the inequalities of the impression. The rubber will be found to adhere to the previous coating with the greatest tenacity, therefore a little care is necessary in placing it in position, as after touching the model it cannot be shifted. This can be done by doubling the soft pattern over the end of the right forefinger, and placing this on the middle of the palate; the two wings can then be brought down and gently pressed into place. Any part that requires strengthening or thickening to carry plugs, &c., must have rubber added, just as in the ordinary method wax is built upon a wax core. The piece is now smothered in plaster, placed in a flask, filled up, and when the plaster is set vulcanised. The process up to the vulcanising occupies from five to ten minutes instead of one or two hours. There is no straining of the model in any way, the fit is exact, and slender teeth and undercuts, which, to say the least, make a difficulty ordinarily, are thus fitted with ease.

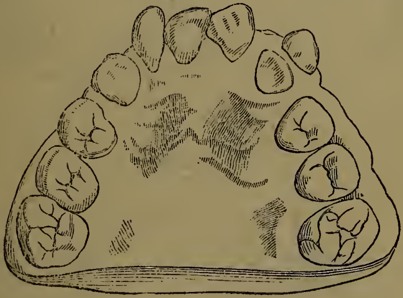
The following case is given in illustration of some different methods of applying force with vulcanite regulation frames:

About two years ago Mr. B—, a medical man, brought his son for advice with the following irregularity:—On the right upper side were two well-developed lateral incisors. The hindermost of these occupied the place required by the canine of that side, which could be felt under the gum outside and above it. All the bicuspids were in place and both the upper first molars.

The presence of the supplemental lateral, with the pressure of the approaching canine, had thrown the centrals, large, long, prominent teeth, much to the left of central line of the mouth. The left central incisor was rotated rather more than the eighth of a turn so as to make its cutting edge parallel with that of the right. The left lateral was thrown inwards and backwards, and the left canine, the point of which was just through the gum, outwards and forwards, so that the middle of the labial surface of the lateral was just behind, and almost touching, the middle of the lingual surface of the canine. The teeth were very prominent, and the effect very disfiguring, and as the first molars were already decayed the first step was to remove them as well as the posterior right lateral, with the intention of presently proceeding to reduce the teeth to symmetrical positions. Mr. B—, however, hoped that what had been done would allow nature to rectify matters, and delayed to bring his son again until September, 1875, when very little improvement having taken place he again came into the hands of my partner Mr. Coles and myself.

The advantage we hoped to have gained in space at the back of the mouth by the extraction of the first molars, which would have allowed the bicuspids to be moved backwards, had been in some measure lost by the delay, as the second molars had filled their places. His mouth presented the appearance of Fig. 1.

Fig. 1.



The right canine had come down in its right place, although still rather short. The left canine had come down a little, but was not altered in its position relatively to the lateral. The centrals showed a disposition to improve by moving towards the right. The right lateral was still very prominent.

A plate was made to cover the palate, cap the molars and bicuspids, and come down outside them an eighth of an inch on the gum. It was not allowed to fill the gap between the left lateral and bicuspid, but at that part the palatal rubber was carried up rather higher than the tops of these teeth in order to carry a hole for a plug of compressed wood. The plate was filed a quarter of an inch back from the right lateral to allow this tooth to move in (see Fig. 2).

The elastic rings used were cut from the black india-rubber tubing sold with Maw's feeding bottles for the nursery.

In order that a frame may act efficiently in a case of any difficulty it is important that it should be firmly tied in the mouth. Fig. 3 illustrates the method adopted.

In the diagram the roots of the teeth are indicated to give

FIG 2.

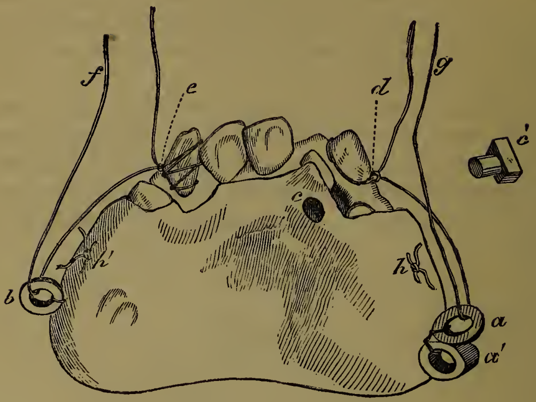
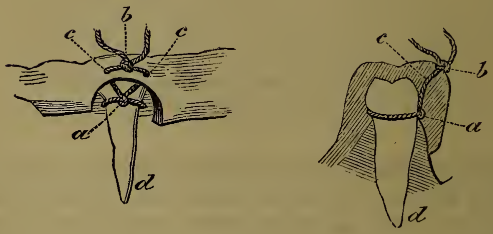


FIG. 3.



a better idea of their position, and a small piece of the vulcanite plate is supposed to be cut away from the left-hand figure to show the tie underneath.

The second bicuspid being chosen as the most convenient tooth for the attachment of the ligatures, holes are drilled through the outside of the regulation plate about a quarter of an inch apart, so as to enter the impression of the second bicuspid nearly at the place to be occupied by the highest part of its outside cusp, that is, in the deepest part of the impression (see Fig. 3 *c c c*). Fine mohair is passed around the neck of the tooth, and tied tightly on the outside at the margin of the gum in a knot (Fig. 3 *a a*). The fellow tooth on the opposite side of the mouth having been treated in the same manner the loose ends of mohair which have been left about six inches long on purpose are threaded through the holes (Fig. 3 *c c c*) in the regulation plate, which is then slid up the ligatures into its place. The patient is now directed to bite hard; the ends opposite each tooth are drawn tight, tied (Fig. 3 *b b*), and the superfluous ends cut away.

Before the plate was put into position, however, holes were drilled at the posterior ends on the outside and an elastic ring, made by cutting a quarter of an inch off the black elastic tubing sold with Maw's feeding bottles, tied on at each end (Fig. 2 *a b*). A square-headed peg of compressed wood (Fig. 2 *c'*) was placed in the hole (Fig. 2 *c*), so that in expanding when in the mouth it should drive the left lateral and first bicuspid asunder, and virtually, the bicuspid being supported, drive the lateral towards the central. A ligature was then placed around the canine. This tooth was not fully through the gum, which was therefore slit to allow of the mohair being pushed under it until a firm hold of the tooth was obtained. I may here remark for the sake of young practitioners that this is more easily done than appears probable, as there is no adhesion between the gum or periosteum and the enamel of any tooth.

The right lateral was a very long and prominent tooth; it seemed, therefore, desirable to pull it from as near the top of the crown as possible. This was done by beginning at the neck and crossing the ligature to and fro, tieing a knot at each angle of the zigzag, as seen Fig. 2 *e*.

The mouth and plate being now both ready to be brought together the end of one of the ligatures on the lateral (Fig. 2 *f*) was slipped through the elastic ring *b*, also one of those on the canine *g* through the ring *a*.

The ligatures for tieing the plate on to the bicuspids were threaded in their respective holes as previously described, and the plate placed in the mouth and tied by them (Fig. 2 *h*).

By drawing upon the ligature (Fig. 2 *f*) the elastic *b* was brought up to the knot *e*, and whilst held there by a blunt instrument tied. The same thing was now done to the canine on the other side by drawing upon the ligature *g* and tieing it at *d*. The distance between the knot *d* and the knot which tied the elastic *a* on to the plate was one inch and one sixteenth, and the stretch of the elastic on the other side was the same. The patient was now dismissed for a week on October 5th, 1875.

(*To be continued.*)

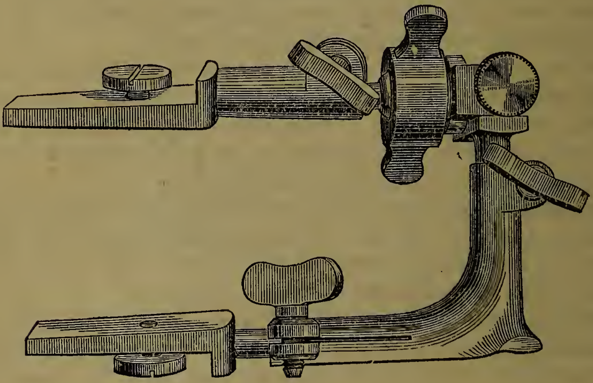
ON A NEW ARTICULATOR.

By G. Davidson.

In submitting this articulator to the notice of the Dental profession, I beg to invite their attention to the following advantages of this invention:

It enables a Dentist to fix and articulate the models of the mouth with the greatest accuracy; it is made in gun metal, and supersedes all other existing methods of articulating, inasmuch as it allows the models to be attached to the articulator before a bite is taken from the mouth, and as it can be adjusted instantaneously when the Dentist has obtained the usual bite or articulation, which may then be placed between the models held by the suspender, and kept permanently fixed in that position until the teeth are mounted. Should an incorrect bite have been taken by the Dentist, and an alteration of position be found necessary, it can be immediately done in any and every direction; this is one of the leading features of this articulator.

Fig. 1.

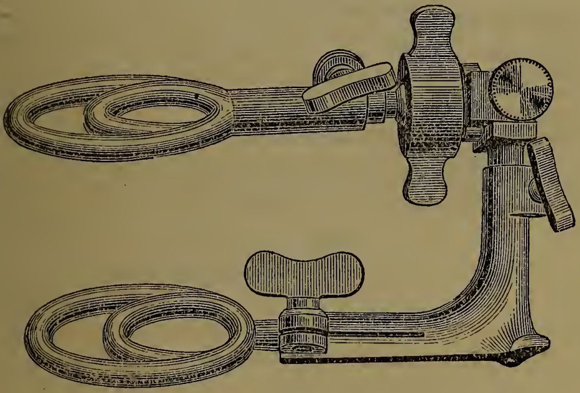


The positions may be changed in fourteen different ways, besides affording every possible range in all those several motions. It can be readily adjusted to suit high models as used in plate work, or low models as used in the vulcanite process. There are no complicated arrangements liable to become deranged by wear, and all parts being made in duplicate, any single piece can be immediately supplied from the depôts.

By Dentists in large practice this instrument will be found to be invaluable. It enables any number of cases to be simultaneously filled up ready for trial in the mouth, and to be refixed to the instrument immediately, thereby saving first the time spent in cutting off the models from the ordinary articulation, next the amount of plaster used (which is a consideration where plaster is difficult to obtain), and again the time of the *operator*, the *patient*, and the *workman*, while the models are being reset in new plaster.

Provincial practitioners and Dentists having to send their mechanical work out will find this instrument extremely useful, as once a bite is correctly obtained by the operator, such bite may be sent any distance with perfect confidence of its being accurately retained in its position as sent; for all parts of the articulator are made by machinery expressly constructed for its manufacture, and thus having an articulator in each place, the models only will be required to complete the work.

Fig. 2.



Unlike ordinary articulators which have always to be retained for one case exclusively until completion, this enables the Dentist to fit up any number of cases consecutively by means of model suspenders which are designed for plate work, and for cases in which it is preferred to retain the original models.

Dentists who vulcanise on the models taken from the mouth will find the suspenders, fig. 2, preferable, retaining as they do a firm hold on the models with the use of a very small quantity of plaster, and being detachable without injury to even the most delicate model. But in a large practice for this class of work a few extra suspenders would be required; they are to be obtained at all depôts, where they may be seen with models attached. One glance will show its advantages over every other method yet introduced.

415, Old Kent Road.

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From December 1st to December 31st, 1875.

Extractions	Children under 14	253
	Adults	430
Under Nitrous Oxide		139
Gold Stoppings		149
White Foil ditto		36
Plastic ditto		186
Irregularities of the Teeth treated surgically and mechanically		52
Miscellaneous Cases		150
Advice Cases		99
Total		1494

James Merson,
Dental House-Surgeon.

British Journal of Dental Science.

LONDON, JANUARY, 1876.

We will not detain our readers in this our opening leader of a new volume, longer than to wish them all a happy and prosperous year, and to announce that we have at last completed the task we were requested to undertake—of organising a committee to endeavour to work out a system of Dental Reform, based upon the principles of Registration and Compulsory Education. Having, in conjunction with Mr. Tomes, carefully and with much consideration compiled a list of gentlemen who for various reasons it was deemed right to suggest as members of a liberal committee to carry out a liberal measure, that list was sent to every subscriber to the fund, for approval or otherwise.

On the return of the voting papers they were placed in the hands of two gentlemen wholly unconnected with the matter, and therefore having no personal feeling or bias on the subject; having, in fact, nothing to do with the merits of the question, but being simply requested to examine the voting papers and determine whether the committee was duly elected or not.

Dr. Cholmeley, the accomplished Editor of the 'Medical Times and Gazette,' and Mr. Christopher Heath, F.R.C.S., one of the Examiners of the Royal College of Surgeons, kindly undertook the office of scrutators. At the request of the Editor of this Journal, they most carefully and scrutinisingly went through every individual paper, and we are pleased to be able to say that they have been unhesitatingly able to subscribe their names to the document we publish in this issue, certifying that the list of gentlemen we suggested for the committee has been duly elected, and, we may add, by a most gratifying and overwhelming majority.

This committee will be called together as speedily as can be conveniently arranged, and into their hands we shall gladly resign the heavy responsibilities which have been cast upon us, and which we most reluctantly undertook, upon the urgent representations of many of our brethren.

If in the fulfilment of what we conceived to be our duty we have hurt the feelings of any individuals, we can only pray them to consider the greatness of the task we had to perform, the utter impossibility of satisfying every one, and the imperative necessity for acting in the most liberal manner, irrespective of any party, or class, or individual prejudices. Whether we may be adjudged to have accomplished our task well or ill, we can only give the most emphatic assurance, that we have desired to act throughout in the most single-hearted manner, uninfluenced in any way by personal feelings, and desiring only to do that which we conscientiously believed to be for the good of the community.

Literary Notices and Selections.

FURTHER OBSERVATIONS ON HARELIP AND CLEFT PALATE.

By Sir William Fergusson, Bart., F.R.S.,
Surgeon to King's College Hospital.

In the 'British Medical Journal' of March 28th and April 4th, 1874, I ventured to write on these topics, under the impression that, in regard to both, I had something new, and therefore original to state. On hare lip I trod on ground which to many might seem so trifling and so exhausted that I could scarcely expect attention to what I stated, excepting from those who might have special interest in such cases; or who might, like myself, have devoted more than forty years of careful study to matters in surgery and abnormal development, which, in the estimation of many, have been considered of minor importance.

Within these two years my experience on such malformations and their treatment has been considerably increased; and at the risk of being considered prolix, I venture to give the results of that experience in the hope of making additions to our knowledge in this department of professional study.

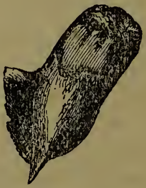
At this date in surgery it is not easy to imagine how any novelty in regard to hare lip could be announced. In the paper above alluded to I described a practice in the operation which I thought likely to be advantageous in certain examples. In some cases of single fissure I had learnt from experience that failure of the usual operation was induced by the projection of the intermaxillary bone on that side, and I had long been in the habit of removing such projection previously to bringing the edges of the gap into approximation. This removal was readily accomplished, in the majority of cases, by the scalpel or scissors. Preferring, as I do, to perform the operation in the early months of infancy, the tissues are then so soft that they can be readily cut by these instruments. At an older date the cutting forceps was sometimes applied to divide the narrow part of the intermaxillary bone where connected with the vomer. For many years in early life a scalpel can readily be passed between the intermaxillary bones in the mesial line; and it was my custom in many instances to so use the blade as to effect the separation. But even here, in the course of time, I learnt to apply conservative surgery; and, instead of taking away bone, tooth, and mucous membrane, I so managed by cutting and raising the mucous membrane, that I could cut away tooth and bone, and leave the membrane as a soft cushion and a more complete covering to the side not interfered with. The object here was to keep a natural surface of mucous membrane, instead of exposing a considerable portion of raw surface. Within these two years I have frequently acted on these views, and have every reason to be well satisfied with the results. In some instances I have been content with gouging out the tooth only; but in others, where the prominence has been of considerable bulk, I have clipped away the whole bone, leaving, however, the whole mucous membrane, and probably most of the periosteum. By such a plan I feel confident that union of the gap in the lip has been rendered more certain. An objection, and seemingly important one, to this plan is, that it costs the milk incisor, and possibly the permanent one. I have long been convinced, however, from experience, that these teeth are rarely of much value. Occasionally some good teeth are met with in the intermaxillary bone, but so rarely, that their preservation is of small consequence as compared to the result of a well-designed and perfect operation. Whilst advocating the sacrifice of teeth, or even of an intermaxillary bone in single hare lip, where the bone happens to project, I feel equal confidence in recommending free work with the two intermaxillaries when they happen to be very prominent in double harelip. In many instances of double harelip, as in single, the alveoli are not involved in the fissure; but usually there is the complication of cleft-palate, and the intermaxillary bones are left so isolated, being attached by a slender neck to the vomer, that in subsequent years their value is questionable, even when preserved in a satisfactory operation for the double gap. It does in some instances, even after years have passed, fill up a gap that might otherwise be in front of the mouth; but it has often appeared to me that it would have been better away, so as in due time to permit the closer approximation to the lateral portions of the jaws. Where, however, the intermaxillary bones do not project, so as to endanger the success of an operation on the lip, I am not disposed to urge their removal; but, where they project so as to interfere with the satisfactory treatment of the lip, I earnestly recommend the removal of the projecting and nearly isolated mass. From time to time I have met with cases where I have been reluctant to meddle with this projection; and, with a conservative motive, have even been content to do one gap first, and the other in a few weeks afterwards. I cannot say, however, that this plan has given me so much satisfaction as taking away the whole, and effecting junction in the two gaps at once, whether the intermediate portion of skin has been worked into the lip or made to represent the columna only.

It is often a puzzle what to do with the central portion of the lip in front of the intermaxillary bones. It is rare to find it so long and the nostrils so perfect that it can be associated with the lip—particularly to bring its free margin down to the level of the lateral portions of the lip by however small a strip. It more frequently is so short that the surgeon may be well pleased if he can, by paring its extremity into a wedge, incorporate it into the upper portion of the lip. In the majority of cases he may be well content if he can shape it into a respectable columna; and in some instances it will puzzle his ingenuity even to accomplish this. Some of the most troublesome cases I have met with have been those where the difficulty has been how to dispose of this bit of lip—it might have been called skin—so very short has it been. Some writers on this subject have gone so far as to question the presence of this intermediate portion of lip or skin, as if to show that the gap in the human subject may take place in the mesial line, as in the hare. This, I contend, never happens; but, in some instances, the intermediate portions may be so short as to appear wanting altogether. There are specimens of this kind in the museum of the Royal College of Surgeons of England; but a fissure in the mesial line in the human subject, with the nostrils perfect, has never to my knowledge been seen. It would be to me as unprecedented as to see a fissure in the upper lip under each nostril in a hare. So far as I am aware, no such specimen has ever been seen.

In general, if I have the opportunity of treating a case *de novo*, I try to join the apex of this intermediate portion with the sides of the lip at the first operation, but occasionally union fails. I have tried again months or years afterwards, and usually succeeded. Sometimes I have met with instances where the junction in the mesial line has been effected by others, and I have been in doubt whether a bit of the mesial soft substance has or has not been cut away. I fancy that in some cases a portion has actually been cut away. If anyone who reads these lines should ever think of cutting a portion of the intermediate soft slip away, I earnestly urge him not to do so—at first, at any rate. Sometimes, in my own practice, I have left this portion so long and broad as to make it appear far to big for a columna; but that is a fault which can easily be remedied, whilst the surgeon with all his skill may be foiled in closing the opening into the nostrils, left either by the natural shortness of this intermediate portion, or in consequence of its abbreviation by his own hands.

Since I last wrote on the intermaxillary bone in the human subject, illustrative of hare-lip, the most notable case I have met with in practice is to me unique, and, in my opinion, specially worthy of record. In April 1875, I was consulted regarding the case of a young lady, six years old, who had been born with double hare-lip and cleft palate, each of the worst kind. The operation for hare-lip had been performed in early infancy, and union had ultimately been accomplished after several failures, chiefly attributable to the prominence of the intermaxillary bones. To facilitate matters, these had been bent backwards towards the gap in the palate. The whole condition of the upper lip and mouth was most unsatisfactory, both regarding appearance and comfort. There was still a projection in the middle line, caused by the intermaxillary prominence, which was but scantily covered by the sides of the lip and a portion of soft material extending partially from the columna. Being requested to improve if possible, I decided to remove the intermaxillary mass entirely, bring the lateral portions more extensively into apposition, and to raise the columnar portion more into the normal position. These views were most satisfactorily realised. The friends and I were gratified: but, for myself, further matter of interest remained regarding the condition of the intermaxillary bones and the teeth. Prior to the present generation of surgeons, the idea of bending back the projecting central portion had been entertained. Mr. Samuel Cooper described an interesting case of the kind, wherein, by means of a kind of truss, this was accomplished by a slow process of pressure. Some thirty years ago, it was not uncommon to push the projection back by means of rapid force. The slender neck was bent, or rather broken, the mass was carried backwards, and held there by the completion of the operation for the clefts in the lip. I performed the operation repeatedly, but was never specially well satisfied with it, nor had I ever an opportunity of examining the parts anatomically afterwards. Before doing so, the death of the patient was to be implied. Here, however, in the young lady's case above referred to, was an opportunity never presented to me before. So I had the intermaxillary projection macerated with care, and found the slender neck bent upon itself. The bone or bones were thickened somewhat, as if there had been a fracture. The symphysis between the bones had closed by bone, an early period for this, and probably caused by the exalted action subsequent to the bending or breaking action.

But the state and position of the teeth chiefly interested me, as I had for the first time ocular proof of what I had long conjectured, and considered a serious objection to this mode of preserving the intermaxillary bones. I doubted the wisdom of thrusting this wedge between the side portions of the jaws, and placing the part so much in the horizontal plane as to make the front surface the under one. Moreover, I fancied that probably the most desired object of this plan, viz. that of preserving the teeth, would so place them that, in the event of their acquiring to even tolerable development, they would grow horizontally backwards instead of downwards, as in the usual direction. Before I removed this intermaxillary process, I could feel the margin of the left front incisor, as if it were coming in this fashion; and, on macerating the specimen, I found such to be the case. Here is a sketch of the specimen, of normal size. It is placed in the line of the alveoli as it was in life. The right, which had not yet come through the gum, besides having its horizontal direction, has its margin where the flat surface should be; and the left, whose edge had protruded, is nearly parallel with the horizontal palate plates of the upper jaw, instead of being at right angles with the roof of the mouth. This specimen I believe to be as unique as were those, now preserved in the museum of the Royal College of Surgeons, when they were first depicted in some of the early editions of my work on 'Surgery,' about thirty years ago, and displayed at the College of Surgeons, where I gave lectures on the "Progress of Surgery in the Nineteenth Century," in 1864.†



Sketch showing intermaxillary portion, with teeth horizontal.*

But I fear those matters may appear too minute, and possibly trifling, to those who read them; yet they are of palpable value to the practical surgeon, and this compartively substantial aspect may possibly prove refreshing to some who feel themselves bound to read up to the day about organisms, anatomies, and atomies which seems so transcendental and subtle as to reach beyond ordinary comprehension and demonstration.

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* We are indebted to the courtesy of Sir William Fergusson for the use of this block.

† See 'Lancet,' 1864; also 'Lectures on the Progress of Surgery during the Nineteeth Century.' Churchill.

The object of this paper is more with reference to cleft palate than hare-lip. To some it may appear that the latter is a worn-out subject, but I believe there are many to whom cleft palate is still an abstruse subject, and for further elucidation I venture to continue the theme which formed the principal feature of the communication in 1874, above referred to. At that date, my experience of the operation for the defect extending to between two and three hundred cases, had led me to the conclusion that operative interference with cleft in the hard palate was rarely followed by satisfactory results. I had resorted to most of the plans familiarly known, likely to prove successful, and was occasionally much pleased, but failures were so frequent that in many instances I made no attempt to close such gaps at all, and was content if I got fair union in the greater extent of the soft velum. The subject had long engaged my attention in every aspect I could think of, and at last I resolved to adopt a plan which in my estimation held out the greatest chance of success. This plan consisted mainly in dividing the hard palate about midway between the margin of the fissure and the alveoli, with a sharp chisel, so as to set a portion of the hard palate on each side free, thereafter paring the edges and uniting them in the middle line by means of stitches. Particulars of the operation were given in the paper in the 'British Medical Journal,' already referred to, and in the concluding remarks I ventured to say that I had touched new ground in surgery. In this, however, I soon found that I was mistaken, for my friend Mr. Hulke, of the Middlesex Hospital, within a few days pointed out to me that Dieffenbach, more than forty years ago, had made a proposition of the kind. The subject was further made public by my friend Mr. Mac Cormac, of St. Thomas's Hospital, in a communication to this Journal, of date June 20th, 1874, and I found that I had been in a manner anticipated in what I had considered an original idea. In several of my first trials of this process on the living body, I carried the threads through the holes or slits made by the chisel, but I found that on drawing the noose there was great tendency to bring the palatal mucous surfaces of the flaps into apposition instead of the pared edges; in other words, to throw the two flaps into a vertical position in the roof of the mouth. Here I fancied that I had hit on a remedy for this also, which was to bore one or two holes, according to the size of the flaps, through which I could pass the needles and threads, and so approximate the pared margins without upsetting the horizontal position of the flaps. This plan answered my expectations; but here again I found that the original record of the great German surgeon had anticipated what I had found in practice. Dieffenbach had also suggested these punctures. It seems doubtful whether or not this operation had been done by Dieffenbach; and it is curious that no trace on the subject is to be found in any English surgical writings on cleft palate during the last forty-five years. I myself had not met with any suggestion in regard to division of bone until my attention was called to it by my two friends above referred to. Within the last thirty years much has been said and written by Mason Warren, myself, and others, regarding cutting and tearing the soft parts from the hard, and bringing them down in hope of getting union in the middle line, but the proposal with the chisel seems to have been overlooked or ignored by all who have worked at the subject. I shall, however, be well content to have followed in the wake of Dieffenbach, whose proposal to divide the internal rectus of the eyeball for ordinary strabismus gave me the key to my own practice of dividing the levatores palati in ordinary cases of cleft palate.

I shall now proceed to give the results of my experience in regard to the supposed addition to the operation in certain cases of cleft palate, which I described in this 'Journal' of date April 4th, 1874.—*British Medical Journal.*

(*To be continued.*)

SNOW-WHITE SALICYLIC ACID.

By Dr. Aug. Rautert.*

It is well known that the salicylic acid prepared by Kolbe's process does not possess a pure white colour, but is more or less yellow. The salicylic acid manufactured and furnished to the trade by Dr. F. von Heyden, in Dresden, according to the above patent, is a whitish powder with a strongly yellow hue, from which by recrystallization tolerably coloured crystals are obtained. Kolbe himself says that, in order to obtain snow-white salicylic acid, the crude acid should be converted into an ether by the usual method, and this again decomposed by caustic soda, and so on. However, the boiling-point of the ethylic as well as the methylic ether is so high that at this temperature a portion of the salicylic acid begins to decompose. For my part I have never succeeded in

* From the 'Polytechniches Notizblatt' ('Pharmacist' for August).

obtaining in this way more than one-fourth of the quantity of salicylic acid originally employed in the form of a chemically pure product.

As the use of salicylic acid for medicinal and surgical purposes is constantly increasing, a method of purification whereby the yield is much larger and almost the entire quantity of salicylic acid present can be separated from its coloured impurities with little trouble and at a small expense, will be welcome. Salicylic acid, we know, cannot be sublimed without decomposition. It splits up into carbonic and carbolic acids. On the other hand, salicylic acid volatilises in a space filled with any gas or vapour at a temperature far below its boiling-point, and even far below its melting point. If the vapour from a boiling aqueous solution of salicylic acid be condensed, it readily gives the reaction of this acid; and if salicylic acid is exposed to a current of air heated to 212° Fah. it rapidly loses weight.

I made use of this phenomenon in the process here described for the preparation of pure salicylic acid, and found, after many unsuccessful experiments, that superheated steam was best adapted to the distillation of salicylic acid. For this purpose I had made a little double-walled copper boiler, by placing two copper tubes of unequal diameter, one within the other, and closing the ends with plates of copper soldered with hard solder. The space between the two tubes was filled through a suitable opening with melted paraffin, and in this opening was placed a thermometer so that I could continually observe the temperature. The interior of this double boiler held the crude salicylic acid, and to the highest part were attached two tubes. One tube served to introduce the superheated steam: through the other the boiler was filled with crude salicylic acid, and it afterwards served as exit for the steam laden with acid. This tube should have a diameter of at least 0·6 inch, because otherwise it is easily stopped up by the escaping salicylic acid. The double-walled boiler used in my experiments was so large that I could operate on about as much as two pounds of crude acid at one time. To the last-mentioned tube of at least 0·6 inch diameter is attached a straight tin tube of the same width, passing through a Liebig's condenser and kept always cold. On the upper end of the tin tube, where it is connected with the copper boiler, a small lead tube with a funnel is soldered on; and through this, cold distilled water is allowed to drop continually during the distillation.

When the apparatus is all arranged, the boiler is heated until the thermometer in the paraffin marks 338° Fah. Superheated steam at 338° Fah. is allowed to enter the interior space through the narrower tube. This steam is generated in a glass flask of 3⅔ pints capacity, and is superheated by passing it through a long thin lead pipe coiled in an iron pot containing paraffin, which is heated to 338° Fah. As soon as the crude salicylic acid had acquired the temperature of the surrounding paraffin, which always takes some time, its distillation begins, the acid passing off with the accompanying steam so rapidly that the tin tube would be stopped up very soon, in spite of the continually dropping water, unless the pipe is continually cleared by means of a glass tube, or, better still, a split stick of well-boiled pine wood, which reaches all the way to the boiler. The salicylic acid appears at the lower end of the tin cooling pipe as a thick magma of snow-white colour, and is caught in a beaker glass placed under it. At the close of the operation the temperature of both paraffin baths is raised to 365° Fah. In about two hours the operation is finished. Only a slight black resinous residue remains in the boiler. The salicylic acid which goes over has only a slight odour of carbolic acid. By pressing out the crystalline mass, boiling it in distilled water and recrystallizing, it is easily freed from the carbolic acid. By recrystallization from distilled water (well water, or a filter which has not been washed with hydrochloric acid, contains enough iron to impart to it a reddish colour), it can be obtained in beautiful, absolutely white crystals. One must not neglect to carefully clean the tin tube with ether before beginning the operation, to remove the grease that always accompanies the manufacture.

In the manufacture on a large scale high-pressure steam could be substituted for the paraffin baths. In high-pressure steam itself, employed directly, the salicylic acid scarcely distils at all. I tried, among other things, to distil the acid by the direct action of steam at a pressure of five atmospheres, at which pressure the temperature is 320° Fah., but did not succeed; the steam scarcely carried a trace of acid with it. Evidently the boiling-point of the acid was correspondingly raised by the increased pressure. I conjecture that the distillation of salicylic acid under diminished pressure, say half an atmosphere, would take place still more readily.

I would further recommend a stirrer for the salicylic acid boiler, so as to give it more opportunity for contact with the vapour passing through it.—*Pharm. Journ.*

CHLOROFORM AND ANÆSTHESIA.

By John Smith, M.D., F.R.C.S.E.,
Surgeon-Dentist to the Queen for Scotland.

Since the publication of Dr. Lauder Brunton's communication, in which he alludes to the administration of chloroform in insufficient quantity as a cause of danger, some attention seems to have been drawn to the subject in respect to this and other points.

I wish to make a few additional remarks on the matter; and that I am so far qualified to do so will perhaps be admitted from the fact of an experience in the use of chloroform ever since its introduction in 1847, and a practical acquaintance with it, more or less, in every variety of case in which it ever has been given—over and above that of between three and four thousand times administering it in my own department of surgery. I trust my making such a statement may not be set down to any other motive than to show that I do not speak without sufficient data to entitle me in a certain measure to do so.

First of all, I entirely agree with Dr. Lauder Brunton's views regarding the degree of anæsthesia required for operating safely. In a communication read by me before the Medico-Chirurgical Society here ten years ago, and published in the 'Edinburgh Medical Journal' for 1866, I make the following remarks, which will be seen closely to coincide with those of Dr. Brunton:

"In all cases, anæsthesia, to be either satisfactory or safe, should be complete. I have repeatedly noticed patients, who have had chloroform on different occasions for such operations as came under my own department express themselves as much less uneasy after a full dose—much less exhausted; and I may mention my own personal experience of this agent to bear out such a statement. So far it is more satisfactory; but it is also more safe. We know that one of the benefits of anæsthesia is the prevention of shock during an operation. We know also that shock tends to interfere with the heart's contractions, by the influence of the cerebro-spinal system on the cardiac ganglia through the par vagum. And this tendency does not always depend on the magnitude or importance of the operation. The operation may be a minor one, and the suffering inflicted very slight. The patient may be unconscious of pain, and yet the heart may, through the ganglionic system, be affected by the operation, and syncope result. . . . There can be no reasonable doubt that, of two patients equally under chloroform, if one be operated on in any way worthy of the term, and the other not, although neither has actually experienced pain, yet the one wakens up in a very different condition from the other; the one has suffered more or less from shock, the other has not."

In the same paper allusion is made to the fact of the sudden diminution of the heart's action, on the operation being commenced, even during the state of anæsthesia. This I have myself frequently remarked even in tooth-extraction, and the fact has been over and over again observed in the greater operations. It is this tendency to sudden syncope which indicates the necessity for all operations being, if possible, performed with the patient in the recumbent position. In my lectures at Surgeons' Hall here in 1854 and subsequent years, and in the 'Handbook of Dental Surgery' published as my class-book, this was, so far as I am aware, inculcated for the first time as applied to Dental surgery; while, again, in the paper I am now quoting, I find it stated that "syncope during anœsthesia, as at all other times, is most apt to occur when the patient is in the upright or semi-upright position; and it need scarcely be here said, that, in order to diminish the chances of a complication so serious, the horizontal posture should in all cases be the one adopted during the exhibition of chloroform. Such, however, is far from being the position generally chosen for minor operations. The preponderance in these operations of death associated with chloroform is, no doubt, attributable in a great measure to a contrary practice, it being very generally considered not worth while in such cases to make a patient lie down.

With regard to the subject of death from the administration of chloroform, much has been stated calculated to create a very unfair prejudice against it, No agent possessing such power of abrogating sensation can possibly be free from a certain amount of risk in its employment. Thus much, therefore, is to be understood as admitted in speaking of chloroform. But a great deal beyond this has been attempted to be made out. Every death now occurring during an operation in which chloroform has been given is set down to its effect, and sensational paragraphs too often appear in our daily press spreading such ill-authenticated reports. In fact, no deaths under such circumstances are nowadays attributed to "shock" and other causes which used, before the days of anæsthesia, to be set forth in explanation of such cases, which, by the way, were far more numerous than they now are. But these cases, although fewer, still do occur; and that chloroform is unwarrantably blamed in them is, I fear, equally true.

Dr. Brunton mentions a case where chloroform was to have been given, and in which the patient suddenly died during the operation without its use. As I happen to have been present on that occasion, I may mention that the non-administration of the anæsthetic was not due to the bottle being broken, but to Professor Simpson, who was to have administered the chloroform, not arriving in time. Here the patient died on the first incision being made through the skin over the hernial sac. Shortly before this, again, Dr. John Argyll Robertson here had met with a similar case—strangulated hernia—where the patient died while the groin was being shaved, and where no anæsthetic had been given. And, since the introduction and general use of chloroform, did time and space permit, many such cases could be cited where circumstances rendered the administration of any anæsthetic impossible. Even in tooth-extraction this has occurred; and Mr. Holmes mentions the case of a patient whom the Dentist found dead in the chair on returning from a side table, where he had been selecting the instrument to be used. There is very little doubt that, had chloroform been employed in these cases, it would have been subject to strong suspicion, if not to actual blame, as the cause of death.

Lastly, there is an important point connected with the numerous alleged deaths from chloroform which seems to be overlooked or set aside as undeserving of notice; and that is the extreme discrepancy prevailing in the account of *post-mortem* appearances. In the case of any other poison producing death we find certain specific and uniform indications of its peculiar toxic action; whereas in those ascribed to chloroform the *post-mortem* appearances range from those presented by death from syncope, on the one hand, to those produced by asphyxia, or those of the very opposite characters to syncope, on the other; arguing it to be extremely probable that one or other of them was during, and not owing to, anæsthesia from this agent. I will add a single other quotation on this topic from the paper to which I have so largely ventured to refer. It is as follows:

"In the fifty cases collected by the late Dr. Snow the condition of the heart was very various. In nearly twenty it was either gorged or tolerably filled with blood. In others it was empty, but stained with blood, showing that probably it had been emptied only at the *post-mortem* examination. Dr. Berend, of Hanover, details among others ten cases, in all of which the heart was empty, flaccid, collapsed, and doubled upon itself. In other cases from time to to time recorded the heart was firmly contracted. In many it was diseased, and in not a few the cause of death was found in some other organ altogether, such as the spinal cord. Again, the opinions as to the mode of death are not less various. Dr. Sibson, in 1848, attributed the fatal result to death of the heart; Dr. Snow, to what he termed cardiac syncope; Dr. Black, to asphyxia; Caspar, to neuro-paralysis; Sansom, to both syncope and asphyxia, &c. A conflicting mass of evidence, from which it appears impossible to derive any other conclusion than that the deaths described were due to no one cause, but had been produced in a manner widely differed, according to the circumstances of the case."

A word here may be said regarding nitrous oxide as an anæsthetic. Although in the daily use of this agent, I fear that we can scarcely yet place it in comparison with chloroform, allowing that its mode of action were similar, which is very doubtful. The limited sphere of its application in medicine and surgery, the condition of patients under its influence, and some of its possible bad effects not being immediate, but more likely to show themselves at an after date, preclude its being used as anything like a fair standard by which to judge of chloroform. It is an excellent, an invaluable agent in its own place; but neither in medicine nor surgery is it ever likely to supersede such anæsthetics as ether or chloroform. In fact, if such were attempted, it seems very doubtful whether its present small rate of mortality would not increase in rather a startling manner; while its efficiency as a substitute would be found at fault in many ways.—*British Medical Journal.*

CHLOROFORM IN DENTAL EXTRACTION.

The value of Dr. Lauder Brunton's paper on the "Cause of Death during the Administration of Chloroform" cannot, I think, be over-estimated. It goes far to explain the fact for which it has hitherto been difficult to account, that the proportion of deaths during the administration of this anæsthetic is greater in England, where small doses are given, and apparently greater precautions used, than in Scotland, where, following the practice of the late Sir James Simpson, it is given fearlessly and in large unmeasured doses.

There is undoubtedly some truth in Dr. Brunton's belief that comparatively few of the deaths occurring during the administration of chloroform are directly the result of its use. It would be interesting to know, in statistics of operations in the Edinburgh Infirmary, whether the proportion of deaths during operations—*i. e.* on the table—has been greater or less since the introduction of chloroform. For practical purposes, it may be said, death from chloroform-poisoning is caused by either syncope or asphyxia, the latter probably being more common. Excluding the reflex causes, of which Dr. Brunton endeavours to prove the existence, death always appears to begin either at the heart or lungs. Chloroform, after having abolished consciousness and motor power, then paralyses the medulla oblongata. The respiratory as well as the cardiac and vaso-motor centres are very near one another, and closely connected in the medulla. Any agent applied through the medium of the blood to the medulla must act on all these centres simultaneously; yet how does it happen that in so many cases the respiration stops before the heart's action? Doubtless, because the heart, by virtue of its own inherent nervous arrangements, is so far independent of the nervous centre. If Dr. Brunton's reflex theory turn out correct, it comes to be a question whether, in the absence of some reflex cause, the heart's action is ever likely to stop before the respiration. Many practical questions hinge on this, and I sincerely trust a point so important may be definitely settled by the labours of such painstaking observers as Dr. Lauder Brunton and others.—James Carmichael, M.D., Edinburgh.—*Brit. Med. Journ.*

DEATH FROM ETHER.

The 'Boston Medical and Surgical Journal' for November 25th, 1875, contains the following statement abridged from the 'New York Herald' of November 22nd. A man aged 54, went to the Homœopathic College in New York, on Saturday, November 20th. "He was complaining of pain in the left upper jaw extending to the head, with great nervous prostration. There were four openings in the jaw, all discharging fœtid pus. On introducing a probe, caries of the upper jaw was found, and the patient was advised to have the bone removed." "He was placed under the influence of ether;

and *laid on the table*" (the italics are ours). "A physician was constantly feeling the patient's pulse while the ether was being given." An "incision was made into the upper jaw, and four teeth extracted." The operator was "about to extend the incision, when he noticed the face of the patient become blue. Artificial respiration and the galvanic battery were applied, but they were unavailing; he was dead." The editor of the 'Boston Journal' makes the following comment on the case. The reputation of ether, in doses even of a pound or two, has been hitherto pretty good. It has been tried on patients with hearts variously fatty. It will be difficult to persuade us that two and one fourth ounces of this hitherto beneficial agent proved so suddenly fatal, without any previous gradual diminution of the pulse. It should be conclusively shown that the patient died of nothing else. This patient, so far as we can judge, died of asphyxia from blood in the trachea. In the first place, after he was etherised, he was laid on his back. An "incision" was made in the jaw, and time enough elapsed to extract four teeth. Dead bone always makes the soft parts vascular. There was ample time for blood to fill the trachea. Until it is shown that there was no blood in the fauces and trachea, this must stand as the cause of death. The necropsy is silent on this point. The suddeness and the lividity both belong to asphyxia and neither to etherisation. In the Massachusetts General Hospital, operations on the mouth are usually done in the erect posture, with special attention to keeping the fauces clear of blood.—*Brit. Med. Jour.*

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

General Monthly Meeting, Monday, December 6th, 1875.

Alfred Coleman, Esq., Vice-President, in the Chair.

The minutes of the last meeting having been read and confirmed,

Messrs. **Underwood** and **West** were appointed Auditors, to examine the accounts of the Society.

Mr. **Turner** exhibited a specimen of true exostosis, the bony tumour appearing on the fang of a second bicuspid.

Mr. **Hutchinson** mentioned a case of elongation and separation of the central incisors. The patient was twenty years of age, and the elongation was increasing at the rate of about $\frac{1}{32}$nd of an inch in three months. He was at a loss to discover the cause.

The **Chairman** said such cases were frequently met with. In this instance the cause seemed more particularly to be the loss of the teeth at the back, so that the few teeth left to bear the pressure were driven into their sockets. He believed the case would be met to a considerable extent by supplying teeth to the upper jaw to relieve the pressure on the molars and prevent the incisors impinging on the upper incisors.

Mr. Hunt said his father had watched a case for more than forty years, in which from the loss of the molars the central and lateral incisors had gradually lost their verticle position and had become horizontal.

Mr. David Hepburn said cases of this sort were occasionally met with which did not seem to be due to pressure. He therefore thought they had not arrived at the true cause of the disease, which was very troublesome to deal with.

Mr. Hutchinson said he had called attention to a similar case at a past meeting of the Society, and his object was to get some further information if possible. He hoped to be able to find some cause for the elongation, but was utterly unable to do so at present. M. Taine noticed as a speciality of English women, that their centrals elongate and separate giving them a "carnivorous" expression. It would be exceedingly interesting to discover the cause of this, and still more satisfactory to find some remedy for it.

The Chairman said the subject had for a long time occupied his attention. One cause that might be assigned for it was no doubt want of use, where the teeth did not receive an antagonistic pressure there was a tendency to elongate and to be erupted from their sockets. This was due to a condition that was always taking place, the growth of bone from its vascular or nutrient centres to its surfaces. In this way only could they account for the eruption of the permanent and also of the temporary teeth. This was constantly taking place, but was checked in the case of the molars or bicuspids by their antagonising against other teeth; the incisors which did not exactly impinge upon other teeth were kept in their place by the action of cutting or incising food. In the present state of society, when the knife and fork usurped the true office of these teeth, it was rather remarkable that this condition of the teeth was not the rule rather than the exception, that it was greatly on the increase there could be no doubt. He found in such cases gentle and continuous pressure effected considerable improvement.

Mr. Hunt mentioned a similar case of elongation of the left central incisor which was eventually removed, and now the canine which had been previously wanting was peeping through the gum, occupying the space between the lateral and right central incisors. Should the canine be removed under such circumstances, or should an attempt be made to harmonize it with the other teeth.

The Chairman said the Society could scarcely express an opinion without seeing a model of the case.

A case of mechanical adaptation of an artificial palate and teeth was brought forward by Mr. Moon and Mr. Oakley

Coles, and the patient being in attendance, Messrs. Hepburn, Parkinson, and Vasey were appointed to examine and report upon the case. Owing to pressure of time, the consideration of this subject was postponed till the next meeting.

Mr. A. W. Barrett then read a paper on "Decomposition of the Dental Pulp the cause of Periodontitis," of which the following is an abstract:

Professor Lister asserts that decomposition may be averted if the admission of putrefactive germs to the substance prone to decomposition be prevented. He regards carbolic acid as a substance which has the power of rendering these germs inert, and of shielding organic matter from those particles that would otherwise excite in it destructive changes. When the dental pulp dies, its tendency, if uninfluenced, is to become putrid. During this process much sulphuretted hydrogen gas is evolved, which makes its way into the mouth through the opening which caries has usually made into the pulp cavity.

But it may happen that this aperture is absent, either from decay not having extended so deeply as the pulp cavity, or from the filling up of this opening by a particle of food, or by the operations of the Dentist, as when the latter places a filling over an exposed nerve. Then, though constantly this gas is set free from the putrescent pulp, it can find but one road to escape,—*that* lies through the opening at the end of the fangs. Whils doing this, particles of the semi fluid nerve *débris* are forced through the fang extremities into the socket in the alveolar process. The result that usually follows inoculation with putrescent animal matter occurs in this instance: inflammatory action is lit up around the fang leading often to the formation of an abscess, and the escape of pus through the alveolar process into the mouth.

The occurrence of this alveolar inflammation depends primarily on a purely mechanical cause, to wit, the expansive action of the sulphuretted hydrogen gas shut up in the pulp cavity, and if the opening at the end of the fang be obliterated, the putrid nerve may be locked up in the tooth for years without causing any inflammation outside the fangs.

Periodontitis is sometimes regarded as the result of the extension of inflammation from the tissues within the tooth to those without: this does not appear to me to be the pathology of the condition. In nine cases out of ten I think it it caused by the injection into the socket of putrid particles from the interior of the tooth. On opening the pulp cavity of a tooth around which periodontitis is going on we find almost invariably the pulp dead and fetid. The act of opening the pulp cavity will always relieve the alveolar inflammation, by allowing the gas to escape into the mouth from the interior of the tooth. Occasionally periodontitis occurs while the nerve pulp is not decomposed. I have seen it result from the application of arsenious acid for the purpose of devitalising the nerve. Carbolic acid, by preventing decomposition within the tooth, will prevent inflammation without, and I cannot but think that the objection existing to the use of arsenious acid has chiefly resulted from the non-use of this antiseptic after the pulp has been devitalised. After the latter process a filling, perhaps, is placed in the cavity, the interior of the tooth still containing shreds of dead animal matter, which soon decompose as the air with its accompanying germs has been admitted into the tooth, and ere long a putrescent globule is orced from the end of the fang, and periodontitis is lit up. The risk of the latter is obviated after the use of arsenic if the nerve be cleared out from the fangs, and the interior of the tooth plugged with wool and carbolic acid: over this the metal filling may be placed. The mode of treating periodontitis will be much modified if we admit its causation by imprisoned gas within the tooth; our object will then be by drilling through the crown into the pulp cavity to afford a vent to the elastic vapour.

An opening being made the decomposed contents should be removed, and carbolic acid introduced. The vent-hole may be allowed to remain for the escape of gas; after a couple of months it may be plugged experimentally; if periodontitis is again caused the aperture must be again restored.

But the treatment of teeth chronically inflamed is unsatisfactory and too often ends only in extraction. That it should do so is evident on consideration of what I believe to be the pathology of the condition; for what can it avail to apply palliatives to the outside of the tooth while the cause of disease remains? But patients will not always consent to extraction, and, failing that, the best thing is to open the pulp cavity, and thoroughly carbolize the putrid contents.

In conclusion, one may generalise thus: Periodontitis, with rare exceptions, is caused by decomposition of the dental pulp, and if the nerve be in a putrefied condition it will cause periodontitis, unless (1) leakage into the socket be prevented by the senile change of obliteration of the terminal openings in the fangs, or (2) an opening exist through the crown into the pulp cavity, allowing gas to escape into the *mouth.*

The CHAIRMAN said that he (Mr Coleman) was about to read a paper on a cognate subject, and therefore suggested that the discussion should be taken on the two papers together.

Mr. ALFRED COLEMAN then read a paper "On the Treatment of the Dental Pulp when exposed by Disease, and of Dead and Discharging Teeth," of which the following is an abstract:

GENTLEMEN,—Like many others, I have long endeavoured to carry out operations for filling teeth with the preservation of their vitality:—the objections to the opposite course I pointed out so long ago as the year 1860, in the first paper I had the honour of reading before this Society. I have long aimed at plans of treatment which might as a rule be carried out at one and the same visit. Exposure of the healthy pulp in the process of excavating a tooth is so readily treated, and the conditions of the organ so different to those which exist when it is laid bare by disease, that we can hardly draw a comparison between the two cases; yet, if we are able to make the latter imitate the former by causing the exposed ulcerating and discharging surface to assume a healthy one, and then effectually protecting it from all external sources of irritation, we may surely hope for an equally successful result; and this object I thus attempt to bring about. I would select those cases which have been regarded as the least fitted for destruction by arsenic; viz. where we see the pulp exposed, crimson in colour, and even granulating into the carious cavity beyond its normal limits. Clearing away as much of the softening dentine as possible, without inflicting any pain, I obtund the sensitive surface of the exposed pulp by freely applying to it crystallised carbolic acid rendered fluid by a few drops of chloroform. The surface being quite blanched, I take a small disk cut out from an address-card, immerse it in the strongest nitric acid, and lay it directly upon the pulp, a sensation more akin to discomfort than pain being felt. Should the exposed pulp have assumed a polypoid form, I may repeat the process once or even twice. After allowing the nitric acid to remain in contact for two or three minutes, I remove the disk, and neutralize the acid in the cavity with an alkali; after which, cap the surface with thick paper moistened with carbolic acid; cover this with a coating of oxychloride of zinc, and when this has fully set, fill over with foil, amalgam, or Jacob's gutta-percha, according to circumstances. When I first adopted this process I always filled the tooth temporarily with the oxychloride of zinc, hoping that in a short time calcification of the pulp might take place; such, however, has never been my experience. It has always been found healthy, and covered only by the thinnest pellicle of tissue; and as I occasionally injured it in removing the oxychloride, I have latterly almost invariably filled the tooth permanently at once.

The next class of cases which may be permanently treated at the single visit are those where the pulp has lost a portion of its substance, some of it existing in the pulp-cavity, or at all events in its fang or fangs. To attempt to preserve the vitality of the pulp, or any portion of it, under these conditions, would no doubt be fruitless, and the best treatment is doubtless destruction by arsenic and fang-filling; but conditions may forbid running any risk of inflicting pain or the possibility of a second visit; under these circumstances, especially if the tooth be quite free from periosteal mischief, I should fill, leaving a drainage-duct; thus, if with foil, by retaining a small piece of polished iron binding wire from the pulp cavity to the exterior, and when the process was completed drawing out the wire with a pair of pliers, or, better still, by drilling a fine hole through the side of the tooth, and just below the free margin of the gum into the pulp-cavity. If with amalgam, cap over pulp-cavity, with disk of thick paper, and when filled pass through amalgam a fine-pointed instrument, no thicker than a small needle, until the paper is reached or just perforated, and then carefully remove the same. I invariably adopt this plan in molar teeth, where drilling into the pulp-cavity would be attended with risk of wounding the pulp, and I always first apply to the pulp-cavity strong carbolic acid. Fillings thus carried out will generally last from four to seven years, but invariably the fillings do come out, through extension of the disease by the small amount of moisture which will find its way to the interior of the tooth; the result will much, I think, depend upon the size of the drainage-duct. I have found the smallest I could make always sufficient for the purpose. When a tooth thus treated after some years loses its filling, it will be almost invariably found that its cavities are quite free from any offensive contents, and on refilling require no drainage-duct.

A third class of cases are those in which the pulp is dead, and where there is purulent discharge from the pulp cavity, and offensiveness of the dentine itself. For these cases, generally difficult and tedious to treat, I think I can offer a plan which when tried will be largely adopted; the effective agent being arsenious acid; its antiseptic, not its escharotic, properties being those which here render it serviceable. Arsenic is probably the most powerful agent we possess for the prevention of putridity in animal substances; but as in the cases in question I have employed it with two others, viz carbolic acid and chloride of zinc, the results may have been influenced by their presence also. The following is the method I adopt: Let it be a dead and discharging tooth, with even an unhealthy condition of the periodontium, so that it may be somewhat tender when bitten on. I clean out, as a rule, pulp-cavity only, wash out well with carbolic acid, and introduce a disk of card moistened with same, and taking up as much arsenious acid as will readily adhere to it, and place it on the floor of the pulp-cavity over the orifice of fang or fangs, and either fill with oxychloride of zinc temporarily or pulp-cavity only, and the remainaing cavity permanently.

I commenced this method of practice more than three years ago, and can call to mind no case in which the tooth so treated has given further trouble, except in a few which had not been bitten on for a considerable time, and which continued more or less sensitive to pressure; but when the periodontitis has been recent, and rather of the acute than the chronic form, I have always, I believe, succeeded in at least greatly lessening the pain and tenderness. In children I have found the plan, if anything, even more successful; on many occasions quite curing constantly-recurring gumboil; and I may confidently say I have never seen the smallest indications to lead me to suspect any injury has arisen from the employment of so powerful an agent; the rationale of the process being, I believe, the conversion of a putrid and irritating body, such as a necrosed (not merely devitalised) tooth must be, into an innocuous one, which, as we know in the case of a transplanted dried tooth, or an encysted bullet, may, though undoubtedly a foreign body, remain in contact with living tissues without exciting in them any strong disposition to either irritation or inflammation.

Mr. Barrett, senr., said this subject was a very important one, but what surprised him was that, notwithstanding all the discussion it had received, they had made but little progress towards settling the question. They were continually going round the circle: first advocating the use of escharotics, and then going in for capping the pulp, and saving it by every means in their power. He thought, considering the opportunities they had for observation, classified lists of cases might be drawn up, which would enable them to discuss the matter and settle it finally. With regard to the point of deciding whether a pulp was living or dead, he found that if the tooth was tender on the outside upon tapping, the pulp was invariably destroyed. No doubt they were all agreed as to the treatment to be pursued after the pulp had been destroyed, and putrefaction was established.

Mr. Sewill thought the fact of the death of the pulp could be ascertained by almost unmistakable signs; one was the fact of sensibility remaining in the dentine. There were rare and doubtful cases in which the dentine retained sensibility after the pulp had lost vitality, but usually in cutting into the dentine, if it was found devoid of sensibility, they might conclude the pulp was dead, and, on the contrary, if it was sensitive they might also infer that the pulp had not lost its vitality. It was impossible to lay down any fixed rule for the treatment of such cases, but each one must be dealt with upon the pathological condition of the tooth. The object of treatment in all cases was to remove the cause and successful cases merely based upon conjectures of exact pathological condition of the pulp treated were of very little value in coming to a decision. They were all pretty well agreed as to treatment, but the difficulty was to make a diagnosis of the case before them. They were agreed that a healthy pulp ought to be saved, but he could not understand the grounds upon which an escharotic could rationally be applied to such a pulp. The practice in dealing with wounds of other parts of the body was to close a healthy wound and prevent suppuration; no surgeon would apply either carbolic acid or the actual cautery in such a case. In the same way the application of nitric acid to a healthy pulp seemed irrational, and such a treatment could only succeed by destroying the pulp, or it might be found in some of the cases that appeared to progress favorably that the discharge found an exit round the filling.

Mr. Moon mentioned a case confirmatory of Mr. Barrett's statment that tenderness on the outside of a tooth was a sure sign of the death of the pulp. A gentleman came to him suffering from local irritation of the upper molar. Pressure on the buccal surface of the tooth caused pain, leading to the conclusion that there was a circumscribed patch of inflammation on the peridentine, on the buccal surface of one of the buccal roots. There was a cavity under the gum on the distal surface. He applied carbolic dressing, and flushed some wax into the cavity; then with Morrison's engine he drilled a fresh hole from the crown of the tooth, laid bare the pulp, and applied arsenic. When the pulp was destroyed, at once the tenderness on pressure disappeared.

Mr. Hunt asked whether Mr. Coleman would advocate the application of arsenious acid as an antiseptic in preference to removing the pulp.

Mr. Turner said the difficulty in dealing with these cases arose frequently from such minor points as whether the patient would submit to the treatment required. He had one case where he could not keep a cavity dry by, any means for the simple insertion of the instrument into the month of his patient would make him retch. He was considerably puzzled as to the application of nitric acid to a tooth: he had long used it for the sudden destruction of a nerve, but he could not understand its application to a living tissue.

If nitric acid was applied to sores it produced a slough. If a slough was formed after the application of the acid to a tooth, what became of that slough? Until that was rationally explained he should shrink from adopting that mode of treatment.

Mr. Hutchinson alluded to the alarming frequency with which they met with cases of alveolar abscess in temporary teeth. Children of five or six years of age were frequently brought with teeth almost bathed in pus. On a free opening being made in the pulp cavity, pus and bubbles of gas were discharged, but that was very often explained by the tightening of the muscles of the cheek, because on pressure on the surrounding gum air mixed with gas would come out with still greater power. He had frequently removed all the decay in a temporary tooth out of the cavity, and then stopped the tooth, drilling a hole through the sides rather than extract these temporary molars. With reference to the use of carbolic acid he had frequently seen a frightful amount of inflammation follow the dressing of a pulp cavity with wool wetted with the acid. He asked Mr. Barrett whether he used the wool saturated with moist carbolic acid, or whether the wool was dried, so that it was simply impregnated with it in the treatment of the cases he had mentioned. Where they had a tolerably certain method of treating teeth with dead pulps, he thought it wisest to adhere to it as far as possible. He believed the best method of practicc was where there was a dead pulp to leave an exit for discharge, and not run the risk at the end of two or three years of having a frightful amount of alveolar abscess.

Mr. Barrett, in reply, said the application of wool and carbolic acid might produce inflammation outside the teeth by blocking the channel of escape for the exit of gas and putrescent nerve, and so causing the socket of the tooth to be injected through the opening of the end of the fang. With regard to the "rational" application of arsenious acid to a healthy exposed pulp, they must in such cases be guided by results. If it appeared that the best results followed, that was a strong ground for the adoption of such a course.

The Chairman, in reply to Mr. Hunt, said he preferred the use of arsenic to the removal of the pulp in cases of dead teeth, for this reason, that in such cases the whole of the fang and pulp cavities were in a putrid condition. However carefully they cleaned out the fangs, provided they did not treat the tooth itself with some strong antiseptic, they left in the mouth a certain putrid substance. This condition was best overcome by the use of arsenic, and that was why he preferred using that agent to clearing and filling the fangs. He was sorry that he could not inform Mr. Turner what became of the slough after the application of nitric acid, for when he removed the oxi-chloride fillings from those cases, he always found the pulp in a perfectly healthy condition.

The thanks of the Society were then given to the readers of the papers, and the meeting adjourned.

DENTAL STUDENTS' SOCIETY, 40, LEICESTER SQUARE.

Ordinary Meeting, held December 13th, 1875.

W. Willis, Esq., Vice-President, in the Chair.

The minutes of the previous meeting were read and confirmed, and the gentlemen then proposed at the last meeting, viz. Messrs. Ackery, Fisher, and A. Underwood were balloted for and elected members of the Society; and Messrs. Parkinson and Trueman were proposed as members.

Mr. W. C. Storer Bennett produced a very interesting specimen for examination under the microscope of an epithelial growth.

The Chairman then called upon Mr. T. S. Carter for his paper on "Epithelioma of the Mouth."

Mr. President and Gentlemen,—The subject which I have chosen for this evening's paper, is that of epithelioma of the mouth. It is one worthy of your highest consideration, and one with which it is essential that you should become familiar; not only on account of the interest which is naturally attached to any malignant disease, but because, as it is generally found in the vicinity or in connection with the mouth, it may lie within the province and fall to the good luck of the Dental surgeon to diagnose what has been mistaken by your patient for a simple sore, to be a case of that fatal disease—epithelioma.

By making such a diagnosis, you would probably save the life of your patient, for though this is a malignant disease, it is one capable of being eradicated during its early stages.

I have divided my subject, for convenience of description, into several parts, viz.:

1. Definition and general characters.
2. Microscopical appearances.
3. Causes.
4. Symptoms.
5. Diagnosis.
6. Treatment.

To begin with the first, namely, *Definition and general characters.*

It is a disease characterised at an early period by the development of the epithelium, and probably of the superficial layer of the corium, afterwards by ulceration, and lastly by infiltration of the adjacent tissues and lymphatics with epithelium. It is a disease partly cancerous in nature, inasmuch as it has a tendency to local infiltration and ulceration, in its affecting the lymphatics, and producing death by cachexia.

It *differs* from cancer in being generally associated with mucous or muco-cutaneous structures, and in not being accompanied by secondary visceral deposits.

It is thought to be a result of local irritation; is more commonly found in men than women, and when in connection with the mouth, is usually situated on the right side of the lower lip. It is rare before forty, and destroys life on an average in from three to four years.

Its *Microscopical appearances* are as follows:—On section it will be seen to be composed of a fibrous stroma, infiltrated more or less with epithelial cells, varying in amount according to the stage which the disease has reached. These cells are of the squamous or tesselated kind, and therefore resemble in nearly all respects those which are normally found covering the regions in which this disease is met with. Their average size is $\frac{1}{700}$th of an inch. They vary in shape according to the degree of pressure to which they are subjected; some being elongated or resembling fibres, others pyriform or stellate, but they never present the marked differences in form which characterise those of other varieties of cancer. They usually contain only one or two nuclei and nucleoli, though occasionally they are multiple.

These cells will be found to have arranged themselves in concentric layers around the papillæ, and in the deeper structures and cutis vera to have grouped together in globular masses, forming what are known as "epithelial nests," or "globes." A section therefore will present the following appearance:

On the surface will be seen a thickened layer composed of epithelium. Beneath this will be noticed the papillæ, variously enlarged and imbedded in epidermis, and deeper still, the cutis vera and adjacent parts, made up of a fibrous basis, infiltrated with squamous epithelial cells, either single or arranged in concentric layers.

On cutting into this disease, a thin serous fluid often exudes, in which is found epithelial cells, nuclei, and oil globules.

The *causes* of epithelioma may be frequently attributable to some source of local irritation, either continuous or constantly repeated, and may therefore be produced in constitutions otherwise perfectly healthy. Thus teeth decayed or encrusted with tartar may by means of their roughness lead to such a result, and I believe it is often traceable to the smoking of a short clay pipe, that is, a pipe which has had the polished glazed part broken off. The disease being so often situated on the right side of lower lip, is rather in favour of this theory.

There have been cases where an hereditary predisposition has been thought to exist, inasmuch as some of the members of the patient's family have been known to have suffered from epithelioma or cancer. But there is rarely a history of this kind found, and the disease is generally believed to result from some local exciting cause, affecting a part which may be weakened by an excoriation, fissure, or unhealthy sore.

The *symptoms* of this disease will be better understood by tracing a case from its commencement. Taking an epithelioma of the lip for an example, it will be found to originate either in the form of a small itching vascular spot from which the cuticle is constantly desquamating, or as a small fissure covered by a scab. Now for months or years the disease may lie dormant, no further symptoms presenting themselves, but when it once commences to grow, it does so continuously.

The subcutaneous tissues become slowly infiltrated with epithelial cells, the part in consequence becoming thickened and hard. On the surface an irregular ulcer forms with thickened edges, leaving an excavation, from which a creamy discharge usually takes place. At a variable period after this, the neighbouring glands become infiltrated, and the disease proceeds more rapidly in them than in the original site of the tumour. They feel hard and nodular, gradually enlarge, and ultimately ulcerate, leaving gaping wounds. As the disease advances, it infiltrates all adjacent tissues, bone included, and finally may destroy the whole cheek and half or more of the jaw. The patient loses strength by degrees, and if the disease be not checked in its course, the case proves fatal; the constitution giving way under the discharge and pain of the ulcerated surface of the original sore; and the worry of mind, and interference with the natural functions, together with the ulcerated glands, finally cause such general debility that the patient dies of sheer exhaustion.

Now it is highly important that you should be able to *diagnose* epithelioma from the various forms of disease which are so liable to attack the mucous membranes of the mouth. Many of these present during certain stages symptoms and characters so analogous that it requires a little minute examination to be able to distinguish them. Amongst the number is lupus, which may generally be seen in the form of an irregular ulcer, with a non-granulating surface, and abrupt slightly thickened margins, presenting a characteristic eaten appearance. The surrounding structures are apparently healthy up to its borders, the disease not infiltrating ahead or in advance of the ulceration. Its margins and base feel hard, as if bounded by a single layer of indurated tissue. The ulceration advances, destroying not only at its circumference, but in turn the deeper textures, and this without any active signs of inflammation. It *differs* from epithelioma in not affecting the lymphatics, or infiltrating the surrounding parts, and therefore being more defined, not producing such a general thickening to any depth beneath its ulcerating surface, in other words, in not implicating the neighbouring structures more rapidly than it can destroy them. It also does not cause such great pain and general weakness, there being no disease known capable of committing such ravages in the human body, accompanied by such a small amount of constitutional disturbance.

Another disease which often assumes the appearance of epithelioma is one to which may be attributed any variety of symptoms, of the most simple or complicated character—I refer to syphilis. It has a marked affinity for mucous membranes, those of the mouth suffering either as the result of a *primary* affection, the disease showing itself at the point of contact with the contagion, or as a *secondary* symptom the accompaniment of a constitutional taint. It often affects the mucous membrane during its *tertiary* stage, producing foul ulcers, but these seem generally to consist of an extension of the previously existing *secondary* sore. The tendency or disposition of this disease is to the effusion of a low form of lymph or fibro-plastic material into the tissues forming tubercles. Microscopically, these are found to be made up principally of broken-down cell products, imbedded in a fibrillated tissue. The central portion is composed of débris, fat-cells, and cholesterin; and the whole is surrounded by an external layer composed of granulation-cells, and traversed by blood-vessels, which do not exist in its interior. These tubercles desquamate, leaving ulcers with jagged edges and fœtid discharge. The mucous membrane of the tongue may become livid, thickened, and irregularly fissured, giving it a misshapen appearance, and impeding its movements. On its surface may be found opaque patches and fœtid ulcers, and the whole accompanied by enlargement of the neighbouring glands.

Now, how are you to diagnose epithelioma from the two forms of disease I have mentioned, for they resemble each other in so many respects that, to a casual observer, they might all be mistaken for one and the same; there being no distinct line of demarcation between them, as far as general appearances are concerned? Well! I have mentioned the symptoms which characterise lupoid ulcer, and it simply remains for me, therefore, to speak of the second. Now, syphilitic sores are always accompanied or followed by constitutional symptoms. These consist in blotches and pimples on the skin, with scurfy desquamations; enlargement of the glands adjacent to the morbid growths, whether it be primary or constitutional; and there may be iritis, nodes on the bone, sore throat, and huskiness of voice, &c. If you do not meet with any history of this kind, the disease may be a primary sore or chancre, which probably may be traced to direct contact of the affected part with the contagion. There is a case of this kind under treatment at Guy's Hospital, where the patient, a respectable female, is suffering from a sore of the lip attributable to her having drunk out of a mug, previously used by a syphilitic person. Cases of this description are occasionally met with, and glass-blowers have been known to convey it from one to another's lips. These sores will in time be followed by constitutional symptoms.

This disease, therefore, differs from epitheliomatous—

1. In being accompanied by a syphilitic history and constitutional symptoms.
2. In its affecting the neighbouring glands at a much earlier period, usually not later than from six to eight weeks from its commencement.
3. In being influenced by the administration of certain drugs.
4. When on the tongue in being generally found occupying a central position, and not causing such an increase in the flow of the saliva, or producing so much pain.

I think these few differences will enable you to distinguish this disease, and I will now say a few words as to your best method of procedure in diagnosing a case; and have drawn out a short table of the points with which it is necessary that you should become acquainted before you can come to a satisfactory conclusion as to the nature of the disease. You must therefore know—

1. Age.
2. Sex.
3. Habits.
4. Hereditary tendencies.
5. Alleged causes.

6. Duration; and
7. Present symptoms.

First and second. As to *age* and *sex*. I have before mentioned that epithelioma is most commonly met with in persons after forty, and in the male.

Thirdly. The *habits* of your patients might lead you to associate an affection of the mouth with some form of uncleanliness.

Fourthly. There may be a cancerous diathesis or predisposition to this disease, as the result of an hereditary constitutional taint; or a tendency to syphilitic affections as the result of a syphilitic diathesis.

Fifthly. Do not always be carried away by causes alleged by your patient to have produced the growth, for if it be a case of what they suspect to be specific disease, they are rather apt to hide its true source of origin.

You must also be guided by the last two points, viz. *duration* and present *symptoms.*

I have now come to the last, but not the least important part of my subject, namely, *treatment.* In considering this matter the question naturally arises as to whether it is advisable to remove these tumours, considering their great liability to return, or as to whether it is better to try and modify them only by suitable constitutional treatment. The balance is certainly in favour of the operation, and for several reasons. In the first place, there is the hope of entirely exterminating the disease, and cases have been known where an early excision has produced the desired result; again, there is the probability of lengthening the life of your patient, or, at any rate, of his obtaining an interval of health; for though the primary growth may again return, yet in the mean time he will be free from the annoyance naturally attending the presence of an irritating unsightly sore.

I should therefore strongly urge the necessity for removal at an early period, or even after the lymphatics have become affected, for they also may be extirpated.

There are two methods of local treatment, namely, removal by excision or caustics. The former is most generally adopted, as it may be done under the influence of chloroform and is less painful. There would also be great difficulty attending the application of the latter to the tongue, and the lip, from its shape, affords every facility for the free use of the knife.

Now, in an ordinary case of epithelioma of the lip the growth may easily be removed by being seized with a pair of serrated forceps, and the knife carried round it, taking care to cut clear of the disease by allowing a slight interval of healthy tissue to intervene.

If the inferior coronary vessels should be severed they must be secured by ligature or torsion and the edges of the wound brought together. The best way to keep them in contact is by the use of the *twisted suture.* To apply this you require harelip pins, cutting pliers, and some soft twine. Having brought the posterior margins of the wound in contact, you insert the required number of pins by passing them through the lip about half an inch from the cut edges. You then take a piece of soft twine and twist it over each pin in the form of the figure 8, so that the crossing portion of the silk lies over the fissure. This brings the anterior margins of the wound into contact. Sometimes a narrow strip of lint is used in preference to silk on account of its being less liable to irritate, but whatever be used it is better to leave it of sufficient length to allow of its being wound round all the pins by passing from one to the other. The opposite ends should be secured and the extremities of the pins cut off to within half an inch on each side. This form of suture may generally be removed after the expiration of about forty-eight hours, and to do this the extremities of the pins should be grasped by a pair of forceps, slightly rotated and steadily withdrawn, at the same time grasping the wound with your finger and thumb. A few strips of plaster will afterwards form a sufficient support.

In excising the tongue an instrument called the écraseur is generally used. This consists of a shaft of steel, through the centre of which runs a small chain or wire cord, projecting from one end in the form of a loop, and being wound round a drum at the other. On turning the drum the loop gradually passes into the body of the instrument. The way it is used is as follows:—An incision is made under the chin in the median line, passing through the floor of the mouth. A curved needle is then attached to the loop, which by this means is more readily drawn through the fissure into the mouth. The noose is then carried back over the tongue, embracing it at a part posterior to the disease. The drum is given half a revolution say every fifteen or thirty seconds. By this means the loop gradually tears its way through the tissues, and a portion of tongue excised, which may be drawn from the mouth. In some instruments the noose is composed of platinum wire, connected to a battery so that heat may be applied. The great value of the écraseur lies in its *tearing* its way through the vessels and preventing the troublesome hæmorrhage which used previously to attend an operation of this kind. It is a natural protective law of nature that torn or lacerated vessels sooner contract than those subjected to a clean cut. This seems a very wise law, for one's life otherwise would always be in danger from the effects of any moderate-sized wound. If it were not the case the mortality would be considerably higher amongst the lower animals, who so often rend each other during their conflicts. You have also another good instance of it in the rapidity with which hæmorrhage usually ceases after the extraction of a tooth.

When an epitheliomatous growth has affected the neighbouring bone, in addition probably to the lip and tongue, the whole has to be excised. I saw a case of this kind a few weeks ago at University College Hospital, where a patient in No. 1 ward, under the treatment of Mr. Christopher Heath, was suffering from this disease, which had infiltrated the front part of the lower jaw in addition to the lip and tongue. These were removed by his being put under chloroform, and after the diseased portion of the lip had been excised, the bone was laid bare and sawn half through perpendicularly on each side of the mouth, bicuspids having been previously extracted in order to facilitate this. The anterior portion of the maxilla was then completely disconnected from the body of the jaw by means of a pair of bone forceps. The object in only cutting half through the bone to begin with is to prevent the trouble that would otherwise result in keeping it sufficiently steady after it had been completely severed in one place to allow of its being cut in another. These divisions having been made the digastric, geniohyoid, and geniohyoglossus muscles were then divided, the tongue having been first secured in order to prevent its falling back on the epiglottis and causing asphyxia after the severance of these muscles. The tongue was then removed by the écraseur, and the parts brought together with sutures. When I last heard of the patient he was doing well.

There was a very sad case of epithelioma at Guy's Hospital a couple of months ago (see 'Brit. Med.' for October 2nd). The patient was a man, aged 47, who twelve years previously to being admitted into the hospital first noticed a very small swelling on the right side of his lower lip. This did not trouble him for four years, at the end of which time it commenced to enlarge; he then had it excised, and as it constantly returned during the next six years he frequently underwent a similar operation. During the last two years the growth slowly increased, and on admission the whole of the mucous membrane from one angle of the jaw to the other was found to be infiltrated with this disease, and the body of the jaw-bone implicated. The chances of life with the operation and without it having been fairly put before the patient, he decided upon having it done. Chloroform was therefore administered and incisions made from the angles of the mouth to the angles of the jaw, and connected by a horizontal incision along the inferior margin of the maxilla; the skin-flaps were then dissected from the bone, and the inferior maxilla sawn through on each side behind the last molar teeth, the incisions passing back to the angles. The tongue having been previously secured the muscles of the floor of the mouth were then severed from their connection with the bone, and the body of the jaw removed. The two lateral flaps were then brought together and attached to the central so as to form a new mouth, the lip being made from the skin of the chin. At first he was fed on a pint of milk administered through the nose four times during the day, and to this an egg was afterwards added to each pint. The operation took place on October 16th, and all went well until January, when he had an attack of erysipelas from which he recovered; but, unfortunately, during the early part of February he became worse, and died on the 8th of the same month. A post-mortem being made, it was found that the epitheliomatous disease had spread along the course of the inferior maxillary nerve to the brain.

When the disease is not thought to be extensive and to be confined to the alveolar portion of the jaw, this part only is removed, thus leaving a horizontal base, which preserves to a certain extent the contour of the face.

If the treatment of epithelioma by means of excision be contra-indicated, *caustics* must be resorted to, care being taken, however, to select those of sufficient strength to thoroughly destroy the growth and not simply irritate it. I will briefly mention a few of those most generally used.

The concentrated sulphuric or nitric acid made into a paste with tow or saw-dust is a very efficient caustic, though rather unmanageable.

Manec's paste is sometimes used. It is composed of one part of arsenious acid, eight of cinnabar, and four of burnt sponge, rubbed down into a proper consistency with a little water.

The caustic alkalies are very good in the form of Vienna paste or sticks, but I think the preference is to be shown to chloride of zinc. This may be made into a paste with from one to four parts of flour, or may be used singly by being slightly moistened and spread on lint. When a slough has formed after its first application, incisions should be made into it, and the chloride again applied so as to destroy the whole thickness of the morbid growth, which finally sloughs out in a mass, the only objection to its use being the intensity and long continuance of the pain it produces, but this may be overcome, to a certain extent, by the addition of about a sixth part of morphia.

While the *local* treatment is being considered, the *constitutional* must not be neglected, for as the general health fails the local disease advances more rapidly, while with its improvement the cancer growth is partly stayed. Good nutritive food should be given, and tonics administered in the form of quinine and preparations of iron. In addition to this, a change of air and, if possible, tranquillity of mind, will do much to alleviate the sufferings accompanying this most fatal disease.

Mr. W. C. S. BENNETT said they were indebted to Mr. Carter for a very interesting and instructive paper, and only regretted that he had treated the subject so shortly. He believed that the exudation of fluid was a constant condition in epithelioma, not merely an occasional one, and with regard to the treatment, mentioned that destruction of epithelioma by ligature had not been noticed by Mr. Carter, and that in doubtful cases of diagnosis between syphilis the iodide of potassium was a useful agent. He also thought the hypodermic injection was the best method of using morphia. He would like to ask Mr. Carter in what cases he would advise the use of the knife; he believed himself it was not borne well in old age.

Mr. F. J. BENNETT called attention to the different seats of an epithelial and syphilitic growth, as helping in the diagnosis between the two diseases, the former being generally found at the edges, whilst the latter was more often in the middle of the tongue. He also mentioned that the gustatory nerve was occasionally cut to obviate the extreme pain which attended the disease.

Mr. MASON believed that the slow growth of epithelioma in comparison with syphilis, and the rapid disappearance of the latter under appropriate treatment, had not been noticed by Mr. Carter.

Mr. S. BIRT related the facts of a case which had been under treatment at the hospital bearing on the subject under discussion.

Mr. T. S. CARTER then replied to the questions put to him, and a cordial vote of thanks having been accorded to him for his excellent paper, the meeting terminated.

Miscellanea.

DENTAL REFORM.

Election of a Committee. Report of the Scrutators.

The Editor of the 'British Journal of Dental Science' having placed in our hands for examination the voting papers for the election of a Dental Reform Committee issued on December 24th, 1875, to the subscribers to the Dental Reform Fund, we beg to certify, after a careful examination of the voting papers, that the following gentlemen have been duly elected to act on that Committee.

Wm. Cholmeley, M.D.
Chris. Heath, F.R.C.S.

Bate, C. Spence (Plymouth).
Bridgeman, W. K. (Norwich).
Bromley, C. H. (Southampton).
Brownlie, J. R. (Glasgow).
Buchanan, G. (Glasgow).
Bullin, Frederick (Chester).
Campbell, W. (Dundee).
Carter, J. H. (Leeds).
Cartwright, Samuel (London).
Coleman, Alfred (London).
Corbett, Daniel (Dublin).
Davis, W. Charles (Bristol).
Dennant, John (Brighton).
Fletcher, Thomas (Warrington).
Fothergill, W. (Darlington).
Fox, Charles James (London).
Gaine, C. (Bath).
Hepburn, D. D. (Nottingham).
Huet, F. A. (Manchester).
Ibbetson, G. A. (London).
Jepson, A. (Leamington).
King, J. (York).
Kirby, H. T. (Leicester).
Kyan, J. Howard (Preston).
Lessert, C. G. de (Wolverhampton).
Lindsey, J. B. (Dover).
Manton, J. N. (Wakefield).
Margetson, W. (Dewsbury).
Mason, Brown (Exeter).
Merryweather, Dr. (Sheffield).
Newman, W. J. (Liverpool).
O'Duffy, John (Dublin).
Oliver, J. C. (Cardiff).
Palmer, James Edwin, Peterborough.
Parkinson, G. S. (Bath).
Parkinson, James (London).
Peacock, Charles Jas. (Scarborough).
Petty, Frank (Reading).
Reid, Dr. (Edinburgh).
Richardson, Frank (Derby).
Roberts, C. (Ramsgate).
Robinson, George (Douglas, Isle of Man).
Rodway, H. Barron (Torquay).
Rogers, Thos. Arnold (London).
Rowney, T. (Hull).
Rymer Samuel Lee (Croydon).
Saunders, Edwin (London).
Sims, C. (Birmingham).
Smith, Dr. (Edinburgh).
Stewart, R. E. (Liverpool).
Tomes, John (London).
Turner, J. Smith (London).
Underwood, Thomas (London).
Virgin, H. J. (Oxford).
Williamson, W. (Aberdeen).
Wood, J. (Dumfries).
Wormald, Sidney (Stockport).

A CLAIM FOR TEETH.

Eskell *v.* Anderson.

This was a claim for £14, balance of account for a set of teeth made and supplied to order by plaintiff, the well-known Dentist, of Hanover Square, London, against the defendant, a lady who carries on a school in Guildford in partnership with her sister, Miss Anderson.

Mr. Geach for plaintiff, and Mr. F. Fulton, barrister, appeared for the defendant.

Mr. Geach opened the case, and explained that on the occasion when the order was given, a set of teeth were ordered by defendant's sister at a cost of £25, and also by the defendant, at the price of £15. A deposit of £3 was paid at the time on the two orders, being £2 for the defendant's sister, and £1 for herself. The witnesses were ordered out of court. Mr. Geach put in a letter, which was admitted by the defendant to be in her handwriting, and which said, "I rely on your promise to make some temporary teeth."

Mr. Starling who for the last seven years has represented Mr. Eskell in Guildford, was called, and said in consequence of receiving a letter in November, 1874, he called on defendant's sister. He saw both the young ladies, and the elder asked him to look at her mouth. He found that the teeth she was wearing were useless, and recommended her to have a new set; she agreed, and he took models of her mouth, the price, which was to include a temporary set of teeth, to be £25. At the request of the younger lady he examined her mouth also on the same occasion, and advised her to have a set of teeth, which she agreed to at £15. The young ladies paid a deposit, the elder of £2, and the younger of £1, which he entered in his book (produced) as being from both, but the witness said he was really not quite certain which it was intended for. He recommended Miss Anderson to have the roots of her original teeth removed, and he arranged to do this when the teeth were made. They were to be made by the 20th December. On the 17th he received a letter from Miss Anderson, the elder, in which she stated that she desired to have the extracting operation performed under the influence of gas. The teeth were ultimately made, and sent to the elder lady. The extraction was performed in London in the presence of the defendant, of whose mouth he took another model at that time. The temporary set of teeth were then nearly ready for her. She afterwards sent a second letter, in which she said that she would not have her teeth done, as she would rather keep her own after seeing what her sister had suffered in getting hers extracted. Mr. Starling was cross-examined by Mr. Fulton at some length, in the course of which he said both orders were given at the same time. The charge was a reasonable one, and witness had commission on his orders. He was a Dentist, and he looked at the ladies' mouths at their own request. A model of a mouth could be made without at first excising the old roots.

His Honour said he could not quite see what the object of the cross-examination was. What reply had Mr. Fulton to that letter?

Mr. Fulton said that he should prove that no order had been given by the defendant for the teeth, and that the deposit was paid only on account of Miss Anderson's teeth. Handing an account to witness, he identified it, and said he saw that the £3 was credited to the elder Miss Anderson. The amount was given to him by the elder Miss Anderson.

His Honour: Oh! that entirely alters the case.

Miss Amy Anderson, the defendant, was then called, and said that the order was given by her sister to Mr. Starling. She said that after examining her sister's mouth he asked her to let him look at her mouth, which at first she declined, but he eventually looked at it, and wished to take a model. She said she would wait until she saw how her sister's answered. He asked for a deposit from her sister, but not from her. He said her teeth would require to be snapped off. Her sister paid Mr. Starling the £3 deposit, and a day or two after the other £3. Both of the credits were given to her sister, and she produced the receipt. She went with her sister on the 19th of December to London, Mr. Eskell's, not intending to have anything done herself, but Mr. Eskell tried to persuade her to have her teeth done, and she said she would not until she saw how her sister's answered. She afterwards wrote to the defendant to the effect that, having seen the pain her sister suffered, and as her teeth did not answer, she should decline to have any made.

After the defendant had been cross-examined by Mr. Geach, Miss Anderson was called, and corroborated her sister's evidence as to the fact that she herself only gave an order, and that the money paid was simply on her own account. She also said that her sister declined to give an order until she saw how her teeth answered, and plaintiff said that £15 would be the price of the teeth. They went to London expecting to see old Mr. Eskell, but found that he was dead, and they saw young Mr. Eskell. He persuaded her to have a set made, but she declined. In cross-examination the witness said that Mr. Eskell said the charge to the defendant would be £15, if they were done. Nothing was said about temporary teeth. Mr. Starling merely looked into her sister's mouth.

Mr. Starling, re-called by Mr. Geach, affirmed positively that when the defendant called with her sister on the 19th a model was taken of her mouth, and that he prepared the materials for it. Her teeth at that time were nearly ready. (The teeth in question were in court.)

This was the whole of the evidence, and his Honour said he found for the defendant.—*Surrey Advertiser and County Times.*

NOTES AND QUERIES.

1. Rheumatic Markings upon the Teeth.—Looking over an old number of the 'Doctor,' I find the following, which may interest some of your readers:

"In the 'Nashville Jour. of Med. and Surg.' Dr. L. G. Noel attributes to chronic rheumatism the condition of the teeth treated of in Dental works as "spontaneous abrasion," and by some thought to be due to mechanical causes alone. He considers the abrasion is caused by the acid secretion of the mouth, and asserts roundly that "there is nothing more certain than that this spontaneous abrasion of the teeth is an index to the rheumatic diathesis. We have seen hundreds of cases to substantiate this truth, and while writing the above, a case came under our observation, where, in the mouth of a man, aged fifty-five or sixty years, the labial surface of the incisor teeth presented deep grooves at their necks. Upon inquiry we learned, as we expected, that he was an habitual sufferer from rheumatism." What will the Dentists say to this?"—X.

2. CAN any of your readers give me any information respecting the administration of nitrous oxide in surgical cases?

3. I HAVE heard somewhere of a white amadou, but cannot recollect particulars. Can any one tell me where to get it?—OUDAMA.

4. PLASTER OF PARIS IMPRESSIONS.—After many years' experience, and some experimenting in taking impressions of the mouth with plaster of Paris, the method I like best is as follows: The plaster should be superfine, fresh-ground, and the water should be hot, 90° to 100°. After stirring in the plaster, add a few drops of fluid cochineal, and a pinch of powdered saltpetre; the cochineal gives a nice pink colour to the plaster, and enables the assistant to distinguish between impression and model, when separating one from the other.—GEO. BRUNTON.

5. CAN any of your readers give me any information as to their experience of salicylic acid?—W.

"X. Y. Z." has omitted to enclose his card; when he does so his queries shall be inserted with pleasure.

APPOINTMENT.

OCTAVIUS ANNESLEY FOX, Esq., L.D.S., to be Dental Surgeon to the Brighton and Hove Dispensary, vice J. H. Brown, Esq., L.D.S., resigned.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

To the Editor of the 'British Journal of Dental Science.'

Sir,—Your correspondent, "An Old Dentist," must excuse me if I give a "hint;" and it is this, that the younger members of the profession must not accept either his histology or pathology as being at all in accordance with the views entertained in the present day. It appears, on referring to your last number, that he is often pained and has to regret that so few of his calling are acquainted with those subjects, but, perhaps, in so doing he has made too little allowance for the march of progress, at least this is the most charitable construction I can put upon his words. Had the article in question been written under any other title than that implying the unquestioned acceptance which age and experience command I should not have intruded on your pages, but it being otherwise, as a teacher at the first Dental school, I feel it only right to do so. I am, &c.,

Alfred Coleman.

19, Savile Row, 31st December, 1875.

To the Editor of the 'British Journal of Dental Science.'

Sir,—I have waited for your last Journal, hoping to see some notice of Walker and Son's self-regulating vulcanizer; as there is none allow me a few remarks on the subject:

First. Does 100 lbs. pressure per square inch represent the best temperature for vulcanizing, as stated in their prospectus?

Secondly. In one of their testimonials it is said, "Your improved vulcanizer I consider perfect, as it can be got up to the 100 with one flask in about ten minutes." Is that an advantage?

Thirdly. Supposing the temperature of a boiler, such as Putnam's or Child's, was raised suddenly a few degrees above what the thermometer registers, would such excess of heat have time to penetrate to the work before the thermometer told the tale?

My experience since the days of Mr. C. S. Putnam leads me to conclude that 81 lbs. pressure, or 315° Fahr., is the highest pressure advisable, and for thick lowers or blocks 310° or 305° Fahr. for a longer time is preferable.

On referring to 'Wildman's Instructions in Vulcanite,' 1866, you will find, "The time expended in raising the heat to 320° Fahr. should not be less than half an hour; very thick pieces even an hour;" and again, "after vulcanizing it is better to let the vulcanizer cool down to 212° Fahr. without letting off the steam."

I have never been able to produce tough horny vulcanite by the high pressure and quick-raising process.

In correspondence with Messrs. Walker and Son I am informed that the self-regulating apparatus is fixed to work at 100 lbs. pressure, "which cannot be altered without expense," so that you cannot alter the pressure to suit various kinds of work and rubber, and its one advantage, the saving time in watching, will not, in my opinion, counterbalance this evil.

I should be glad to know from others with more experience than myself in vulcanite if their results coincide with mine, or if these, to me, new theories are better than the old in any way.

With an apology for troubling you thus, I am, &c.,

REDIVIVUS.

THE RAILWAYS OF THE LAKE DISTRICT.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Will you kindly permit me to call the attention of the profession to a vigorous protest and form of petition with the above title issued by Mr. Somervell, of Hazelthwaite, Windermere, against the proposed application to Parliament for powers to improve (?) the Lake District.

I enclose a copy of it with the form ready for signature, any number of copies of which Mr. Somervell will forward to applicants for them.

What I wish to propose is, that those of your readers (and surely they cannot be few) interested in preserving one of the most lovely portions of our country from ultimate destruction, as far as regards its beauty, should get one or two copies of Mr. Somervell's protest and petition forms, place them on their waiting-room tables; a plan which would obtain many signatures, both directly and indirectly. At least they may send for the paper, and I feel sure, after reading Mr. Somervell's defence of the Lake District and his appeal so temperately made, they will help in some way, if not in the way I have suggested. Trusting you will not consider the subject of my letter as so altogether foreign to the objects of your Journal as to preclude its insertion, I am, &c.,

WM. HENDERSON NICOL, L.D.S.

2, Clarendon Road, Leeds.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In the December number of the 'British Journal of Dental Science' mention is made of a communication made by me at the meeting of the Dental Students' Society, in which the following Greek words have been erroneously rendered, in consequence of my own heedlessness in introducing the abbreviations. You will greatly oblige me by having them corrected.

In page 670, lines 11, 12, 13, make the following corrections:—For *ὀδὸς*, read *ὀδοὺς*; for *ῥύω*, read *τρύω*; for *ῥὶγς*, read *τρύεις*; for *ῥύοω*, read *τρύοω*; for *ῥύσγς*, for *τρύσεις*. I am, &c.,

ALEXIS DE NEGRI.

192, Belsize Road, N.W.; Jan. 4th, 1876.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
3. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

   Twelve Months (post free) . . . 13s. 0d.

   Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of thirteen (penny) stamps.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. We cannot undertake to return communications unless the necessary postage stamps are forwarded.

ANSWERS TO CORRESPONDENTS.

WILLIAM WRIGHT, Manchester.—A letter was sent to you some time ago, but returned through the post-office, "address not known." Please send full address.

"G. D."—You are welcome to our pages next month. Pressure of matter compels us to postpone your subject till then.

"J. C. O."—Many thanks for *carte*.

"A. P. G."—Your communication was too late.

Communications have been received from F. H. Balkwill (Plymouth), F. J. Vanderpant (Kingston-on-Thames), Felix Weiss (London), "An Old Dentist," Alfred Coleman (London), Thomas Fletcher (of Warrington), W. H. Nicol (Leeds), "X. Y. Z.," "W.," George Brunton (Leeds), "X.," "Oudama."

BOOKS RECEIVED.

'Staffordshire Advertiser.'
'Daily News,' Jan. 11th, 1875.
'Transactions of the Odontological Society.'
'Chemist and Druggist.'
'The Student's Journal and Hospital Gazette.'
'Le Progrès Médical.'
'The Pennsylvania Journal of Dental Science.'
'Dental Cosmos.'
'Le Progrès Dentaire.'
Johnston's 'Dental Miscellany.'
'Medical Press and Circular.'
'The Dental Register.'
'The Peterborough Advertiser.'
'Liverpool Mercury.'

British Journal of Dental Science.

No. 236. LONDON, FEBRUARY, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DENTAL MATERIA MEDICA.

A Clinical Lecture.

By James Merson, Esq., L.D.S.,
Dental House-Surgeon to the Dental Hospital of London.

Gentlemen,—It occurred to me a few days since that a lecture on the different preparations which usually stand on our No. 1 shelf in the operating room would be of interest and benefit to you. I remember perfectly well when my lecturer on materia medica at St. Thomas's (Dr. Clapton) commenced his course, how he particularly impressed on us the desirability of being able to treat cases medicinally, and that although he confessed it was a rather dry matter to work up, still each would find that the study of anatomy, physiology, and pathology would be of little use without a knowledge of medicine and chemistry. As our special degree does not demand a very searching inquiry in the knowledge of drugs generally, still when you get written and oral questions put as I had in the following manner when I presented myself to the examiners, I presume you will all require more than a superficial familiarity with them. I was asked "How do you treat cases, locally, constitutionally, and medicinally?"

I therefore propose to begin by explaining the weights and measures used by dispensers and pharmaceutical chemists in dispensing medicines or preparing prescriptions. I hope some of you gentlemen will not think it out of place that I should enter minutely into these matters, but knowing perfectly well that there are first and second year's men present I feel sure the time we devote to this subject will not be thrown away.

I must again impress upon you how essential it is in private practice not to overlook this highly important branch of your curriculum. After all said and done a patient applies to you for a mechanical operation, namely, the filling of a tooth. On examining the tooth how often does one find that without skilful temporary treatment combined with constitutional, any attempt to complete the operation at the first visit by putting in an elaborate gold filling would undoubtedly be followed by prolonged suffering and loss of the tooth. I will likewise endeavour as briefly and explicitly as possible to lay before you the better system to adopt by confining yourselves to a limited number of purgatives, anodynes, astringents, and liniments. Probably you will all coincide with me that this subject is of the driest order. The study of chemistry, however, is very interesting, and I attribute that principally to the fact that in manipulating different chemicals and combining them you produce results which give you conclusive evidence of certain facts occurring. With materia medica and the pharmacopœia you have more particularly to know the sources from which the different drugs that you use are procured and their various properties.

I first propose to enter into the measuring of our different drugs. Of course, as you know, there are apothecaries' weight, troy weight, and avoirdupois weight. A prescription is usually dispensed according to the apothecaries' weight; that is—

10 grains = ½ scruple.
20 ,, = 1 ,,
30 ,, = ½ drachm.
40 ,, = 2 scruples.
60 ,, = 1 drachm.
3 scruples = 1 ,,
8 drachms = 1 ounce.
12 ounces = 1 pound.

Those weights are represented by different symbols. (Diagram.) You must be particularly careful in forming these symbols, for I may say scores of people have been nearly poisoned through carelessness in this direction. The great confusion is likely to arise between the symbol for one drachm and that for one ounce. I have often seen the symbol written in a very indifferent way, so that it might be made either a drachm or an ounce; and were it not that you knew the dose of the article ordered, it might lead to the worst results.

A few years since the Society at Bloomsbury Square proceeded to bring out a British Pharmacopœia, and in doing so the committee thought they would alter the weights. Singularly enough a majority of the medical men object to it, and adhere to the old apothecaries' weight and symbols. I think it would be almost as well for you to adopt this system. The weights of the British Pharmacopœia in writing prescriptions are usually written in this form. In dry measure you put "gr.," in liquids you put "fl." If you were going to order according to the British Pharmacopœia thirty grains of a drug you would put "gr. 30," not ʒss, or if you wanted more grains, "gr. 100." When you fully understand these weights, it is just as well to make your grains fit in to these symbols; for although you write them in this form, they are dispensed according to the symbols; in that way you save the dispenser from the bother and trouble of reckoning. So that if I were going to order a few grains of a drug I should not say seventy-five grains, but I should say gr. 60, or 70, or 90; so that the 60 would tally with one drachm, the 70 with the one drachm and a half scruple, and the 90, one and a half drachm. Without entering more deeply into the weights of the British Pharmacopœia, I will ask you to refer to the subject yourselves so as to save our time now.

We find daily that medicine is ordered to be taken in "drops," which is a very vague term. We are educated to take medicine by minims and not drops, for you can readily see that twenty drops out of a bottle with a big lip would be almost equal to sixty drops out of a bottle with a little lip.

The liquid measure is this—

Minim lx = ʒj.
ʒviij = ℥j.
℥xx = Oj (Pint).
Oviij = Cj (Gallon).

Now, to enter deeply into these preparations as to their uses and doses would simply occupy me until 6 o'clock, so that I must request you to be satisfied with the information that I can give you in one hour, alluding more specially to their utility to the Dentist.

First of all we begin with carbolic acid. Carbolic acid is an escharotic and disinfectant. It is slightly soluble in water, freely in alcohol and ether, and has no acid reaction to test-paper. The crystals absorb moisture with avidity and liquefy. It coagulates albumen. I have frequently noticed some of the gentlemen here are not contented with twenty or thirty drops of Condy's fluid in a quarter of a pint of water to destroy the unpleasant odour arising from the breath of some of our hospital patients through smoking or disordered stomachs, but add a few drops also of carbolic acid, which I need hardly remind you makes a most incompatible mouth wash.

Dilute hydrochloric acid.—This we merely use in addition to pepsine prior to applying it to an exposed pulp.

Acid. Nitr. pur., or *pure nitric acid.*—This we usually employ in cauterising parts, as you often see in the operating theatre after the removal of an epulis or the like.

Tannic acid.—This is one of the best astringents we have. I was asked this morning by one of the students how he could order tannic acid in a mouth wash? he thought it would be more palatable mixed with glycerine. He was quite right. There is a preparation in the Pharmacopœia under the name of Glycerinum Acidi Tannici; it is made in the proportion of one ounce to four ounces of glycerine. I do not think you would have any difficulty in ordering it by carrying out the proper strength and quantity. Oftentimes the gums are in a very unhealthy condition, and the application of some of this Glycerinum Acidi Tannici produces invariably a marvellous effect. Tannic acid is also useful in arresting hæmorrhage, and is often given in cases of hæmoptysis, but we need not dwell upon that. The dose is from two to six grains either in the form of a pill or mixture.

Arsenious acid I need hardly dwell on, for, as you know, when your aim is to extirpate the pulp, you apply arsenious acid, which we generally term "white powder" in the presence of patients, and in the course of a limited space of time, death of the pulp is the result.

Absolute alcohol.—That we usually employ in drying out cavities. The difference between absolute alcohol and ordinary rectified spirits of wine is, that the rectified spirits of wine contains a certain amount of water which we do not require. The better system of depriving it of water is by adding a proportion of carbonate of potash to the ordinary rectified spirits of wine. As you will clearly see, the water is objectionable for our purposes.

Asbestos.—This is generally used in drying out cavities; whether it is preferable to spongoid, amadou, blotting-paper, or cotton wool boiled in caustic potash, is a question. The ordinary cotton wool sold by a chemist is next to useless for our purpose. When I came to this hospital I found it so, and I wrote to Bell and Company to send us some caustic potash. I instructed our porter to boil a pound of ordinary cotton wool in a solution, adulterated with an ounce of this caustic potash. The potash is a powerful alkaline, and immediately destroys the greasy nature of the wool, and consequently renders it more suitable for absorbing any moisture in the tooth, which is the point for which we require it.

Calcis phosphas.—This is a preparation that has not met with the approbation in this country that it has found in America. It has been asserted that calcis phosphas applied to an exposed nerve in the course of a limited period, produces a capping of secondary dentine. I must confess, and I regret it, that I have not tried it myself, owing to the little time for experimenting at the disposal of any one occupying, as I do, the post of house-surgeon.

Calcis lacto phosphas.—This is another preparation that has met with approval elsewhere, but not in this hospital. In the special case-book I find three cases treated with this preparation, and from the notes the nerve has been much in the same condition after the lapse of a few months as when it was first applied. We hear a good deal about secondary dentine forming. Limited as my experience is I must candidly confess that after trying different preparations with a view to succeed in it, at the expiration of three months, six months, and one even as long as twenty-seven months, the pulp was in exactly the same condition as when it was first covered up. I do not believe in any substance or treatment causing the formation of artificial or secondary dentine, but think its production is due to calcification of the pulp tissues, and must be looked upon entirely as a reparative effort of nature herself.

Chloral hydrate.—This is a favourite with me; its advantages are, that after taking a dose you awake in the morning without furred tongue, feverish symptoms, or constipation; in fact, you get up as if you had taken nothing at all. The effect is most charming as a sedative. The dose is from five to twenty grains, but in exceptional cases we have given sixty grains. Some of the students here declare it is the best preparation in the hospital for allaying sensitive dentine. I cannot quite agree with them.

Croton chloral hydrate.—This is another preparation which I put a great deal of faith in. Within the last six months I have treated cases with croton chloral hydrate with such satisfactory results (facial neuralgia more especially) that with me it is a most valuable drug. I may remark that anodynes, generally, while producing the desired effect, yet are followed by unpleasant symptoms on the following morning, such as feverishness, loss of appetite, furred tongue, and slight constipation.

Collodion.—This is made of pyroxylin or gun-cotton, ether, and rectified spirit. There is a form for flexible collodion in the Pharmacopœia which is made by adding Canada balsam and castor oil to the above. The advantage of the latter is, that on drying it does not crack, and peel away as the former. A very good local anodyne can be made in the following manner:—Take twelve grains of hydrochlorate of morphia, and dissolve it in an ounce of flexible collodion; with a feather or brush apply some of this over the painful part, then place a piece of oiled silk over it, and reapply according to the severity of the pain. This invariably gives relief in facial neuralgia, but I almost prefer the liniment of aconite one part, liniment of soap three parts, and laudanum one part, mixed. One or two teaspoonfuls to be poured on flannel and applied to the part, or you might order it to be rubbed in night and morning.

Condy's patent ozonised water (for toilet purposes).—This preparation is more palatable than the ordinary Condy's fluid for disinfectant purposes. Directions are on the bottle, and I should just like to say this with reference to that fact. When I was a student at Soho Square we never had a demonstration in the stopping room nor in the extracting room. I had to glean all my information by keeping my eyes open and reading the labels on each of these bottles, consequently I had no occasion to appeal to the staff daily for instructions. I feel perfectly sure that any of the staff take great pleasure in explaining and enlightening any student as to any of these preparations, but, pardon me for saying so, the majority of the questions could be avoided by merely attending to the labels. For my part nothing affords me greater pleasure than to give you any advice in my power, but I must confess at times it is very difficult when you have half a dozen men around you asking half a dozen different questions.

Chloralum is the next preparation.—This is a proprietary thing, manufactured by the Chloralum Company in London, and is, I believe, nothing more than sulphate of alum and chlorine. It is a preparation specially adapted for Dentists, for in stopping a tooth how often do we let an instrument slip and cause the gum to bleed. By simply applying that it ceases. It is also invaluable as an astringent.

Chlorozone.—This is also a favourite of mine. It is a proprietary thing, but my impression is it is nothing more nor less than permanganate of potash and chlorine.

Condy's fluid is what we hourly use by merely dropping twenty or thirty drops in a little tepid water and requesting the patient to rinse the mouth out. This we usually have recourse to when the breath is somewhat disagreeable. In the Pharmacopœia you will see a form under the head of Liquor Potassæ Permanganatis which in every respect answers equally well and reduces its cost to a mere fraction.

Creasote is distilled from wood tar. In some cases I prefer it to carbolic acid, especially where the cauterising properties of the carbolic are not needed.

Chloroform and gutta percha.—This is an excellent mixture for painting over osteo-fillings prior to removing the rubber dam.

Chloroform and bees' wax.—That is nearly as good.

Camphorated solution of mastic prepared by Bell & Co., No. 2, is a thin solution, and some of you prefer it to the thicker solution. For my part the thicker I get the mastic dressing the better I like it.

Glass and oxide of zinc.—Some of you probably noticed a few days since a patient applying here who had had a tooth temporarily dressed at Soho Square by Mr. Merson. This tooth I remembered doing perfectly well. Prior to putting my cotton wool dipped in mastic in the ordinary way into the tooth, I thoroughly mixed it with this oxide of zinc and glass. After twenty-seven months it was found to be as good and firm as ever. I used thick mastic and benzoin varnish.

Deliquesced chloride of zinc.—This is an excellent thing for allaying sensitive dentine.

Ferri et quiniæ citras.—This is one of the best tonics we have. If you get an anæmic-looking patient you cannot err by giving him from three to ten grains twice a day in water, after meals. It is readily soluble in water and can be flavoured with a little syrup of orange peel.

Matico leaf.—This with some Dentists produces very satisfactory results. You will get cases of obstinate hæmorrhage, and they assert that by simply dipping a leaf in tepid water, folding it round in the form of a cone and packing it thoroughly in the socket, the hæmorrhage may be stopped. For my part, I believe pressure alone in the socket is often sufficient. If you take a piece of lint, not cotton wool, tease it out a little, and then begin at one end and be perfectly sure you are packing your cavity from the bottom, then when it is full get the patient to shut the mouth and keep quiet for an hour, you will generally be able to stop the bleeding.

Morphiæ acetas.—This is an excellent sedative given in doses of from one third of a grain to one grain at bedtime, either in the form of a pill or draught. I should wish to draw your attention to the fact that in the British Pharmacopœia there is a form for a morphia lozenge, each containing one thirty-sixth of a grain, so that you can get at a dose of morphia by ordering six of these lozenges.

Morphiæ acet. et acid. arseniosi.—This some Dentists prefer to the arsenious acid alone, as it certainly tends to mitigate the pain of an exposed nerve, but for my part I prefer the arsenious acid in quantities ranging from one sixteenth to one twelfth of a grain.

Nitrate of silver.—This we usually employ as an application to sensitive dentine or in cauterising a superficial ulcer of the tongue or the like.

Pepsine is a preparation of the mucous lining of a fresh and healthy stomach of the pig, sheep, or calf. It is very little soluble in water or in spirit; the dose is from two to five grains. In some cases of indigestion I have known it act wonderfully well. There are some Dentists in favour of this preparation in the treatment of an exposed nerve. For curiosity's sake, a short time since I tried it in a dozen cases, and as some of you gentlemen know who kindly assisted me, we found the pulps in exactly the same state as they were before.

Potassa cum Calce.—This is a very powerful escharotic and a drug we use very little. It is usually employed in the same cases as potassa hydras. It should be made into a paste with rectified spirit before it is used. It is generally preferred by us in sticks. Where I have found this preparation answer best has been in a case of a patient applying to you for the extraction of an upper molar. Unfortunately you leave a tip of one of the fangs in the socket. In course of a little time the gum closes over, but, on carefully examining it, you can pass a probe to it, that is, after the lapse of time. Now, to get this stump is sometimes rather awkward, but if you take a piece of this preparation and by the aid of a knife pare it up to the size and pass it through this fissure, the surrounding part immediately recedes, and often you will see the stump which can be readily removed with an ordinary pair of stump forceps.

Chlorate of potash.—This, without exception, is one of the best drugs we have, for in the treatment of ulcerative stomatitis in doses of from two to ten grains, varying according to the age, you find a most satisfactory result. About three months since a case was sent here, one of the worst I ever saw. We ordered the child a mouth-wash composed of this principally, and gave him three or four grains twice a day for a week, and certainly the effect was marvellous. Of course, I attribute its effect to paying due attention to constitutional advice generally.

Potassii iodidum.—This we occasionally order in doses from two to ten grains, combined with a little infusion of gentian or decoction of bark. As to the dose of this drug some advocate commencing with six grains and going to twenty and even more. As an article in the Dental Surgery it is invaluable. By that I mean you gain the confidence of your patients, and you clearly prove to them that you have studied not only the mechanical part of stopping the teeth, but the theoretical part of constitutional treatment.

Pure glycerine.—This we usually smear over Stent's composition prior to inserting the tray in the mouth. It is also useful diluted with water in equal proportions for dipping your mirror into, so that the breath is prevented from clouding it during an examination of the mouth.

Pulv. dent. sapon.—This is a tooth-powder made up for us by Bell & Co., composed principally of soap, precipitated chalk, orris powder, and bicarbonate of soda. There are certain cases where some of the patients can do as much by the aid of a tooth-brush and this powder as we can with a cane and pumice-stone, &c.

Sp. ammoniæ aromat.—This is a stimulant, and anti-spasmodic; it is usually given in doses from ten minims to a teaspoonful in water.

Salycylic acid.—This has been extensively used by Dentists with satisfaction, but in three or four cases treated in this hospital it has not met with much success.

Smelling salts.—This I need not dwell on, as you know in cases of fainting it is resorted to.

Sodæ bicarb.—It is an antacid; dose from five to thirty grains. This is made up in the form of a lozenge in the Pharmacopœia, and, therefore, in cases of general acidity of the stomach you can easily order a few of these lozenges to be sucked daily. Each lozenge contains five grains of bicarbonate of soda.

Tr. Iodinii Fort. et Tr. Aconiti (Fleming's).—This we usually employ as a counter-irritant, and it answers admirably.

Tr. Ferri Perchlor.—This is one of the best tonics in the Pharmacopœia; it is commonly called steel drops. The dose is from five to thirty minims. Perhaps for anæmic-looking children, where it is thought advisable to give iron, the Vinum Ferri or the Syr. Ferri Phosph. co., commonly called chemical food, would be preferable. You must bear in mind that iron mixtures should always be taken about half an hour after meals, in water, whereas quinine should be taken between meals, in orange wine or in a mixture made up of tincture of orange peel and dilute sulphuric acid, &c., according to the wish of the prescriber. The iron, as you know, I usually apply in severe cases of hæmorrhage following the extraction of a tooth, and I am in the habit of giving patients a small quantity of the tincture to take home with them, ordering them to take twenty drops in a wine-glass of water every hour till the bleeding ceases.

In giving tonics it is as well to bear in mind to have the tongue clean and not furred when the patient commences a course of quinine or chalybeate medicine. I make a practice of giving some slight aperient a day or two prior to beginning the mixture, otherwise you get feverish symptoms with vertigo.

Tr. Opii.—This I have known give great relief by being applied on cotton wool to the socket of a tooth after extraction.

Tr. Aconiti (Fleming's).—This is an article I want you to pay special attention to. The majority of students on leaving this Hospital labour under the impression that at the Dental Hospital of London they used tincture of aconite. They go to an ordinary chemist and ask for it, but they get a very different preparation to Fleming's tincture of aconite. I wrote Bell and Co. as to the strength of this tincture, and they said it was five times stronger than that made by the ordinary Pharmacopœia. I have tried the ordinary tincture of aconite, and you might just as well put in alcohol, whereas if you use this the effect is sometimes marvellous in allaying sensitive dentine. Aconite acts on the superficial nerves, and is specially adapted for our purpose. It certainly acts charmingly on the nerves, but there are two other preparations in the Pharmacopœia, viz. an ointment made of aconitia, the active principle, and a liniment. The ointment is sometimes applied in facial neuralgia; a piece the size of a pea is usually rubbed in in the region of the pain. The liniment is often combined with other preparations, and is either applied or rubbed in cases of acute pain in any part of the body.

Thick mastic and benzoin.—This is what the label represents, and is according to my mind preferable to a thin solution.

Vinum Opii.—This is a very mild preparation of opium, and is preferred by some in injections for the antrum.

Zinci Sulph. Pur. is an astringent, and is used as an emetic in doses of from ten to thirty grains, followed by frequent draughts of tepid water. As an astringent injection for the antrum it is highly beneficial at times. As a collyrium in conjunctivitis in the proportion of two grains to the ounce of rose water it is also good.

I will now draw up a list of purgatives which will generally answer the purpose without your entering into the innumerable lot used by our physicians. Sulphate of magnesia, commonly called Epsom salts, powdered rhubarb, powdered jalap, castor oil, black draught, seidlitz powder, compound rhubarb pills, confection of senna, and compound colocynth pill, in the proportion of four grains, with blue pill one grain mixed, which form a pill, and either one or two can be taken at bedtime as occasion requires. I must caution you in ordering aperients to patients afflicted with hæmorrhoids to avoid giving them pills composed of aloes; it is better to have recourse to the milder preparations, especially for aged people, as castor oil, rhubarb, or the confection of senna.

For the list of anodynes I propose morphia, chlorodyne, and laudanum. For liniments, I confine myself to aconite, belladonna, opium, soap, and chloroform. Many of these drugs are made up in the form of lozenges, the strength of which can easily be ascertained by referring to the Pharmacopœia. Here is an article called spongio piline, which you will find very clean and preferable to cataplasms generally, as by merely saturating that in hot water and applying it to the surface constantly, the same effect is produced. What is more, you can readily see how it can be applied to any part and kept there. The coating over it prevents the evaporation of the steam.

In conclusion, I thank you for your attention, and I hope you will glean a little from my explanations, which, when put in practice, will I am sure gain for you the confidence of your patients.

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 4.)

II. *Hereditary transmission of peculiarities in arrangement.*—These may be divided into two classes: 1st, Hereditary variations in the position of the teeth themselves. 2ndly, Hereditary variations in the relative position of the superior and inferior maxillæ.

Under the first of these heads we have a numerous group of cases where irregularities have been transmitted from parent to child, with but little modification, from one generation to another, but they are most of them of so usual a character and so frequently met with they hardly require particularising here. The crowding of the upper or the lower jaw to the exclusion of one or more teeth, the canine being, perhaps, the tooth most usually thrown out of position. A class of cases in which the removal of a bicuspid or the first molar on each side, at the same time preventing the antagonism of the back teeth, is generally recommended.

Again, we have peculiarities in the position of individual teeth distinctly traceable to hereditary causes. The overlapping of the central incisors, a distinctive mark, that in one family I am acquainted with ran through all branches on the female side, and was called, so I am told, from the frequency with which it presented itself, T—y's mark. Two of the sisters I have seen, and a child just cutting her inferior central incisors—a case watched with considerable interest.

Hereditary variations in the relative position of the jaws themselves, although by no means uncommon, is not so frequently met with as the mere irregularity of one or more teeth. Perhaps the most remarkable case I have ever noticed was in a lady whose mouth when she first visited me had only six of the lower incisors standing, but so prominent was the superior maxilla, or so far back the inferior, that although all the stumps and teeth had long since been removed in the upper, and the lower teeth were standing perfectly erect, they traversed the centre of the palate. I had an opportunity of seeing this mouth when all the teeth had fallen out; and the anterior portion of the ridge of the inferior maxilla, when the jaws were placed in their normal position, stood one inch and one sixth of an inch within the most prominent anterior portion of the upper. This also appears to have been a family characteristic, but as I never had an opportunity of personally judging whether such was the case, I must pass to a similar peculiarity of which we have a better history.

Mrs. R. N—, æt. 37, a lady (whom I am informed had previously been under treatment), when she first visited me presented the following marked characteristics:—Great projection of the upper jaw, preventing the lips from being closed, the central incisors and the front part of the gums constantly exposed, one central slightly overlapping the other. The laterals turned outwards and inclined towards the median line. The front teeth projecting so far forward that a space was left between the lingual surface of the upper, and the labial surface of the lower. As some of the molars have since been removed, and the projection of the superior incisors has, if anything, been increasing, and as absorption of the gums has set in and the teeth are becoming gradually more and more elongated, the appearance presented is very unsightly. I have frequently seen the father (now deceased) of this lady, and although I never had an opportunity of examining his teeth, I can bear witness that the general appearance of his mouth resembled that of the daughter in a marked degree. I have, however, frequently examined the mouth of—

Miss M. N—, æt. 16, daughter of Mrs. R. N— : and here we have the same projection of the superior maxilla and the same general appearance. The centrals overlapping each other; the laterals directed outwards, and the upper jaw standing far in front of the lower, as in the mother's case. Seeing mother and daughter side by side the hereditary resemblance is so marked that the relationship must at once be apparent. Nor can these peculiarities be in any way attributable to thumb sucking, no such habit having been contracted in either the one case or the other. The lower jaws appear to be normal, the excess of development is evidently confined to the superior maxillæ.

We now come to a class of irregularities presenting precisely the opposite appearance to those we have been describing. The upper teeth, instead of standing out far in front of the lowers, are inside the inferior circle, giving to the face that expression we are accustomed to see in persons said to be "underhung." This is an irregularity met with, if anything, more frequently than that of the opposite character, and although in the generality of cases it is more readily remedied, or at least the appearance improved, it is extraordinary how frequently its regulation is neglected.

Every one must have noticed the change this peculiarity makes not only in the expression of the face but also in the tone of the voice; it is not, however, my intention to dwell upon matters so thoroughly understood. The object I have proposed to myself in publishing these notes is to classify a few well-ascertained points of experience bearing upon conjectural facts experience alone can determine, and it is to the hereditary transmission of this character of irregularity I wish now particularly to direct attention. I think the peculiarity is fairly illustrated by the following series of interesting cases.

Mr. W. S—, æt. about 42, has a powerful square-looking lower jaw standing boldly in advance of the superior maxilla. All the upper teeth are gone, but when the jaws are placed in their normal position, the tops of the lower teeth are one inch, all but a fraction, in front of the central projection of the upper. I saw the mouth before the superior incisors were lost and all the teeth in the upper circle were inside the lowers, the expression of the face and the tone of the voice having those peculiarities we have before alluded to; the upper maxilla being remarkably small and the lower jaw rather larger than usually found.

Mrs. W. S— (wife of the above) has a mouth of perfect regularity. Many of the teeth are lost, but the jaws are placed equally one over the other, the teeth that remain of normal shape and regular in position, the superior and inferior maxillæ being well proportioned one to the other.

We will now examine the mouths of six of the children.

No. 1.—J. S—, the eldest, a boy, æt. 16, has a powerful set of teeth, both upper and lower, and they are now all perfectly regular, although two superior bicuspids have had to be removed. The upper teeth are inside the lower, not to the same extent as in the father's case, for by wearing a vulcanite plate the circle has been considerably expanded. Even had the two bicuspids been allowed to remain (the teeth, however, were so irregular and the opportunities of seeing the boy so few, I thought it best to remove them), it is a question whether they could ever have been brought even point to point. We have here the square jaw of the father very strongly marked, with the same expression of face.

No. 2.—E. S—, a girl, æt. 15. So advanced was the lower circle that two permanent molars, both diseased, were removed. The upper maxilla is very small and the teeth so distressingly crowded that she had to wear a vulcanite plate for three years, one bicuspid removed and also a deformed lateral incisor. At the present moment the upper circle is regular, and just within the lower the front teeth slightly apart, as only the second molars antagonise. Again, we have the same characteristic expression and the square-shaped lower jaw. We have also in this case, as in No. 1, to lament the removal of any of the upper teeth, but one (the lateral) was much deformed, and the bicuspid standing behind the canine showed signs of disease.

No. 3.—E. S—, a boy, æt. 13. Teeth perfectly regular, and articulation correct. Resemblance to the mother.

No. 4.—H. S—, a boy, æt. 10, of the same character as No. 3.

No. 5.—L. S—, a girl, æt. 9, now wearing a vulcanite plate. The first molars, two bicuspids on the left, and four central teeth erupted in the lower jaw. The first molars, four centrals, and one bicuspid on the right in the upper. The centrals of the upper jaw are still inside the circle of the lower, and the teeth in the superior maxilla much divided.

No. 6.—E. S—, a girl, æt. 7. The four first molars and the two inferior central incisors alone erupted, the temporary teeth of the upper jaw still standing, and when the mouth is closed hidden inside the lower circle. This child has also the square strongly-marked lower jaw of the father.

In the cases marked Nos. 1, 2, 5, and 6, I have had an opportunity of seeing the children from a very early period, and they have all presented the same characteristic prominence of the lower jaw. There are other points of similarity exhibited by this family of a very unusual character. I propose to allude to them when I come to speak of the transmission of caries.

(*To be continued.*)

HINTS BY AN OLD DENTIST.

(*Continued from p.* 8.)

An inexperienced operator will oftentimes be deceived by finding on each removal of the creasote a large deposit of pus, and will too hastily conclude that he is making no progress toward a cure; but he should observe the character of this secretion, and if it continues watery and acrid he may justly conclude that he is not making satisfactory progress; although this should not cause discouragement, for I have had a tooth under treatment more than a year which eventually proved a success. But when the pus begins to assume a creamy appearanee and is thicker and has a less offensive odour, it may be safely predicted that the discharge will soon cease; and when the operator finds that the cotton containing the creasote has lost all smell save that of the deodorizer he may conclude that the cure is effected, and that the root is ready for filling.

The third condition under which a tooth is presented for fang-filling is when the periosteum has already inflamed. If the inflammation is active, and there is soreness and acute pain, after—if possible—opening the cavity so as to allow the escape of the pus and the gas,* it is indispensable that all operations cease until the soreness and pain subside. Then, carefully excavating the cavity so as not to renew the inflammation, proceed as before described. If there is an unmistakable alveolar abscess it may be inferred that the periosteum has been to some extent destroyed at the end of the root, and also that exostosis—a disease of which altogether too much has been made—may possibly have been developed, and that, in consequence, the treatment will not be altogether successful. Yet I am not certain that eventually a healthy action may not be produced; at any rate, my experience seems to say so.

It has been so far assumed that decay is the primary cause of the death of the pulp, but this is not always the case; a blow upon the tooth and the recession of the gums, and the destruction of the socket by tartar, will also produce it. In the latter case it is obvious that fang-filling is useless. In the former case if the tooth is sound, and especially if in the front of the mouth, it is a case peculiarly adapted to this operation.

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* See Mr. A. W. Barrett's admirable paper, read before the Odontological Society, of which there is an abstract in last Journal.

Where there is decay as a rule the pulp is best reached through the cavity; but this is not always the case. We often suddenly come upon the pulp in a superficial cavity in a superior incisor; we also sometimes find the pulp devitalised in one of those teeth which has only a small cavity. In many of these cases it is far better not to enlarge the cavity, although when necessary to make an application of arsenic it is best done here. When the tooth is ready for treatment, this cavity may be permanently filled and an opening made directly into the pulp cavity from the palatal surface of the tooth; this is now easily effected by means of the Dental engine. A small orifice will be sufficient, although the opening should be large enough to allow the pulp to be removed, or, in the case of a devitalised tooth, effectively treated. In many bicuspid and molar teeth, when the cavity is on the side and is small, an opening through the grinding surface will be not only best, but in some cases indispensable to success; but it should be remembered that, as a rule, the cavity caused by decay is the best opening into the pulp cavity.

It must be remembered that our difficulties are not so much with the principles of fang-filling as with its practice at all times. If we could, after comprehending the principles upon which this operation is based, always carry them into practice, success would, in my opinion, be very general; but this is impossible, owing to a variety of causes, such as the position of the decay which has been the means of exposing the pulp, the position of the tooth itself, and the formation and situation of the roots. The greatest amount of success will be obtained in the six front teeth because their roots are single and generally pretty straight, which allows the operation to be easily performed; but in all the rest of the teeth the plurality of the fangs render it more difficult to remove the pulp, and in some teeth it is quite impossible to do so. The bicuspids greatly vary. In some of these teeth the removal of the pulp is an easy matter, but in others almost an impossibility. The superior molars are more difficult still, and frequently little can be done except to the palatal root; but as it is at the apex of this root that abscess is most likely to form, if carefully prepared and filled, and as much as is possible done to the other roots, we may hope for a high degree of success. But I find the inferior molars present the greatest difficulties. When the cavity is on the anterior surface of the tooth the roots may in many cases be got at, and the pulp to a great extent removed; but when the opening is on the posterior surface of the tooth it is almost impossible to clean out the roots.

As for a wisdom tooth, I advise its loss when devitalised, except sometimes when, by the extraction of the first or second molar, it has taken the place of the latter. Thus we see that while the pathological difficulties to be mastered in fang-filling are not great, we are prevented in many cases from putting our knowledge into practice from the causes above mentioned; and it is owing to this fact that failure occurs—and, indeed, must occur—with the most intelligent and careful operator; for, in many cases, he cannot remove, and in many others he cannot know whether he has or has not removed, all the pulp; nor can he judge how much action the absorbent vessels may or can have if a little pus is generated.

The next matter to consider is the filling of the root. Many writers refer to gold foil as if it was the only material to be used. In my opinion the extreme end of the root should never be filled with gold. It has no advantages, and some disadvantages. Various substances are used; but in my opinion there is nothing equal to tin-foil; it can be introduced into the root with little pressure, and, possessing great malleability, will readily fill up the cavity. My mode of procedure is as follows:—The fang ready for filling, some small and lightly rolled pellets are prepared, and one or two of the smallest of them are saturated with creasote. The arrangements, whatever they may be, for keeping the cavity dry are applied to the mouth, the cavity dried out with paper, and one of the pellets containing the creasote introduced and pushed into the root as far as possible by means of a fine and well-tempered instrument. The operator must use his judgment whether he will introduce more than one of the pellets containingc reasote. The pressure will exclude nearly all of the creasote, and before proceeding to put in the dry pellets it should be carefully removed by means of paper. The very end of the root once filled the rest of the root may be filled with tin-foil containing no creasote. Ordinary pressure will give all the force required, and a mallet is, in my opinion, out of place in this operation, although it may be used in filling the crown after there is evidence of success in the treatment of the root. It is my almost invariable practice to fill only one root at a sitting, lest too much work upon one tooth at a time should produce the disease it has been my effort to prevent.

The roots of a devitalised tooth treated and filled, it need hardly be said that the crown may be filled in the ordinary manner.

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

(*Concluded from p.* 13.)

On Regulation Plates (*continued*).

The boy being at school fourteen miles away, it was arranged for him to pay us a visit once a week. In regulating cases I have found this lapse of time between the visits more satisfactory than oftener. When a patient attends every two or three days little advance is perceptible, his friends are anxious to hasten matters and the operator is worried to do something more. The plate is removed to put new plugs or elastics, and a great deal of time and trouble is spent for which it is doubtful if any adequate return in expedition is made. It is probable, as I think is mentioned in Tomes' 'Dental Surgery,' that in moving teeth by mechanical pressure, physiological laws are brought into action. Teeth are not forced through the bone as through a semiviscid substance, but the pressure produces irritation which arouses the vital constructive principle residing in the bone to make way for it by absorption, a fresh socket of new bone being formed around the tooth when the pressure is removed. Bones grow in this manner, the old is absorbed and new formed; and in regulating teeth we often find that little progress is made until the teeth become tender and loosish, when they move rapidly, but become firm again on being allowed rest.

Whether or not this is the correct explanation, I find in practice that those cases do best where sufficient pressure is put upon the teeth to make them tender, and a week allowed to pass between each renewal or alteration of the plugs, &c.

In the case under consideration, at the end of the second week the left lateral had made good progress forward, allowing the insertion of a larger plug. The right lateral had also moved backwards, but rather too much outwards, therefore the elastic attached to it was shifted to the palatal side of the second molar so as to pull from inside instead of outside the arch of the teeth. As the left canine had made very little movement the strain on it was doubled by tying another elastic to the frame at the same place as the first (fig. 2, *a'*). This is more manageable than putting a ring double the strength of the first. Two ligatures are attached to the tooth, and each ring drawn up and tied separately. The teeth now made rapid progress from week to week, the peg and elastics being occasionally changed.

An attempt was made during one week to move the central incisors to a more median position; but as the left lateral advanced towards them, and the right lateral was withdrawn, they showed so kindly a disposition to regain their central position that further aid became unnecessary.

As a tooth approaches another under pressure, a pucker of gum is heaped up between them. This, no doubt, absorbs in time, but it is better to remove it, as it is very tough and resistant. This can be done by a pair of fine-pointed scissors, but I more often use and find very convenient a gouge-shaped lancet, made by sharpening the wrong end of a common steel pen. To make it: thrust the writing point of a pen into the holder, and then holding the concave side on the hone, the holder forming a very acute angle with its surface, fret away the pen until the middle line of its back meets the surface of the hone.

In five weeks the left canine was almost touching the bicuspid, and nearly the whole of its crown was through the gum, the left lateral was nearly touching the central, the right almost touched the canine on that side and was closely followed by the centrals.

It being now deemed advisable to try and bring the left lateral more out into the range of the teeth, it became a question for consideration whether it was better to draw it by an elastic or push it by compressed wood. The tooth being comparatively short, it was decided to draw it out by elastics, as compressed wood acting on the inclined plane of the back of an incisor has a slight tendency to thrust it farther into its socket as well as outwards.

The plate, fig. 4, was therefore made, and fitted and tied in as the previous one. It carries a band of vulcanite, *a a*, in front of the incisor teeth without touching them; this was about half an inch deep and the tenth of an inch thick; it passed in front of the left incisor at a distance of a quarter of an inch. Through this band a hole was drilled at *b*, just opposite the tooth and rather above the line of the gum, so that the strain of ligatures passed through it to the lateral should be rather upwards as well as outwards. The outside edge of the hole at *b* was well countersunk, rounded, and polished, so as to give as little friction as possible to the ligatures; there *ff* and *e e* having been previously tied to the lateral were brought through the hole *b*, passed through the elastics at *c* and *d*, which were then stretched up to *b* and tied.

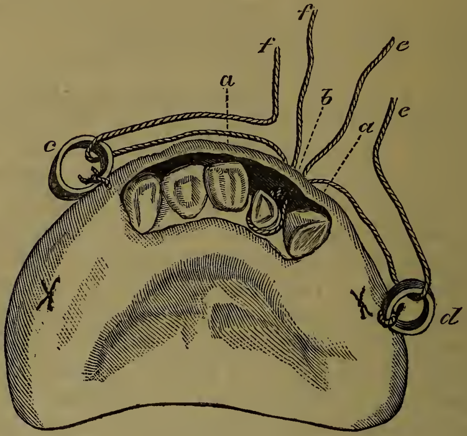

Fig. 4.

In two weeks this had brought the lateral quite far enough forward, and it was determined to proceed to rotate the left central. The father of the boy, although strongly urged, objected to the use of the forceps, and therefore a plate was used. The method figured in Tomes' 'Dental Surgery,' p. 160, was adopted, except a vulcanite instead of gold plate was used. The vulcanite was made to fit nearly up to the top of the front teeth both inside and out, covering the back teeth as before. A slope for compressed wood was cut opposite the internal medial angle and external distal angle of the left central, and the vulcanite was cut away from opposite the other angles to give the tooth room to move round in. The plate was also cut away from inside the left canine, and a slit for wood cut outside in order to drive it in. The plate was tied in and the wedges driven in. A hole was also made through the plate just opposite the left canine inside, through which ligatures were passed from it and tied to two elastics, one fastened across the palate close to the right lateral, the other on the same side, just inside the molar.

By December 7th the left lateral was nearly in position. The lad was going home for a month's holiday after his next visit, and it was not desirable to leave continuous pressure on any of the teeth for so long a time without oversight. A model was therefore prepared by adding a little plaster to the teeth on the correct model in one place, and trimming it away in another, until a new symmetrical range was produced. A plate was made capping these. This when placed in the mouth would not quite go down, but it would prevent the teeth reverting to their original positions and have at the same time a beneficial tendency. He was directed to wear it constantly until it went up into its place, and then only at night.

On January 17th he again made an appearance with so great an improvement that little remains to be done. The left canine is a little prominent and the right lateral too long. As the arch of the teeth will not allow of the canine being brought in, further space will have to be made in some way, possibly by sacrificing the left second bicuspid; and it may be necessary to shorten the right lateral with the file; but as the description of the further details will be tedious rather than interesting, I will conclude it here, promising to send you a drawing and model when the case is finished.

ON THE COLOURING MATTER IN VULCANITE.

By J. Keighley, Esq.

Some two or three months since there appeared in your Journal a communication extracted from a medical publication in which it was stated that serious constitutional disturbance sometimes resulted from the wearing of vulcanite plates containing sulphuret of mercury. Notwithstanding the importance of the subject, considering the immense number of vulcanite plates worn, the paper does not seem to have attracted much notice. Its only effect, apparently, has been to elicit from Messrs. Ash & Sons a statement that they are producing the pink rubber without the mercurial ingredient. This is very well so far as it goes, but I would ask what necessity is there for using this article in any rubber whatever? Richardson, in his 'Mechanical Dentistry,' states that the natural colour of vulcanized rubber is dark brown or mahogany. Now, for the palates or those parts of the denture which are not visible when in the mouth this colour would not generally be objected to. For the gums we must, of course, have pink, and as it seems this can be produced without the aid of vermilion, I would suggest that our depôts give us the rest of our rubber free from any colouring matter whatever, or at all events without the vermilion, for, rightly or wrongly, if the public once receive the impression that Dentists of all classes are putting into their mouths a material which high medical authorities denounce as capable of producing such mischief Dentistry will have received a serious blow.

Surston, Pontefract.

ON TAKING IMPRESSIONS OF THE MOUTH.

By Charles de Lessert, Esq., L.D.S.

The method of taking impressions described in your last issue is not new. In my workroom there are several old model trays used years ago, and pierced, as described, for the purpose of admitting air to the palate and so releasing the impression. My plan is to pass a very fine quill about an inch long through the wax or composition, the perforating end being first armed with a little piece of wood or a pin's head, which I remove before introducing the tray into the patient's mouth, leaving the quill there all the time. The plan of drawing away the silk is apt to pull the wax away from the palate. When I use silk I take a piece about six inches long, and lay both ends flat on the wax, the bend or middle of the silk projecting in front, and when the impression is secured I draw out each end of the silk. But even this requires care or the wax may be disturbed, and when the silk is removed the lip must be kept clear of the air-passages or the whole thing will be a failure.

Wolverhampton.

Chemical Department.

THE ETHERS FOR INHALATION.

W. V. Moore, Esq., L.D.S., M.P.S.

All ethers are subject to gradual change unless secured in a sealed or inverted bottle, the stopper being capped and the bottle deeply coloured or surrounded by a case of paper or leather, lined with some fine woollen texture.

Ether has a strong affinity for oxygen, is very diffusive, and becomes gaseous above 96°. Sulphuric ether, therefore, unless carefully protected, undergoes a gradual change to acetic acid, and chloroform to chloric acid acetised; this is no doubt the cause of some of the failures in the freezing process and in retarding the anæsthetic action by inhalation, and may probably account for some of the fatal cases by chloroform. The preparation may be so changed by temperature and the absorption of oxygen as not to be depended on for producing anæsthesia by inhalation.

Protoxide of nitrogen gas also undergoes a similar change by passing it through ether, losing part of its oxygen and decomposing the ether; it should, therefore, be combined, if at all, by the evaporation or capillary process, so as to intimately mix the two gases during the time of inhalation. Sulphuric ether is highly extolled, and is said to be the safest preparation as an anæsthetic for the hospital and the Dentist's use; how much, therefore, is a knowledge of this part of chemistry necessary for the safe keeping of the preparation, the purity of the compound, and its proper administration?

Sulphuric ether, chloroform, and all the compounds of ether, should be carefully secured, excluding the air, light, and sun's rays as much as possible, keeping in a cool and dry place. Moisture is most destructive to ether from the oxygen it contains and its more ready diffusive action. For the application of ether by inhalation a simple method may be adopted by using a piece of coffer-dam rubber, six inches by twelve, doubling it together so as to make a square, a piece of lint of the same size placed on the rubber, the ether dropped on the lint and applied close to the mouth, sealing the under part of the chin by the hand, forming the whole into a compact mouth-frame.

Ether may be applied very rapidly in this way, but the operator is surrounded by the ethereal vapour that escapes, and there is considerable waste, which may be avoided by using Clover's face-piece, and applying the ether at the end of the two-ways stop-cock containing a piece of lint and having a rubber-capped surface, drop on the lint by a drop-bottle, then $\frac{5}{8}$-inch india-rubber tube, five or six feet long, united to an arrangement with the exhaling tube, and connected with a receiving bottle provided with a stop-cock, and tube dipping midway into the bottle three parts full of alcohol or spirits of wine, the ether exhaled passing through the spirit is absorbed, whilst the air expelled from the lungs passes off free, enabling the operator to collect the ether that would otherwise escape in the room, being thus protected from so highly inflammable a substance, producing a more perfect effect for anæsthesia by excluding much of the surrounding and inhaling the ether in its pure state.

To obtain pure ether and chloroform.—Sulphuric ether when shaken with aniline violet remains colourless, but in the presence of 1 per cent. of alcohol it is distinctly coloured; if the ether contains water or acetic acid it should be shaken with anhydrous potassium carbonate, which will remove the acetic acid and absorb the aqueous fluid. The substitution of grain spirit for pure spirit of wine appears to be the principal cause of the bad quality of certain commercial chloroforms and ethers. A very small quantity of alcohol sensibly lowers its boiling-point and diminishes its effects.

M. Schacht has proved the stability of pure chloroform in vacuo even when exposed to the sun's light. In evaporating pure chloroform by heat from a 1 per cent. solution of nitrate of silver the latter remains clear; if impure it becomes more or less turbid from formation of the chloride of silver. The very unpleasantly smelling products which impair the quality of chloroform and ether and raise its boiling-point originates in the bodies foreign to pure alcohol, produced by the distillation of grain in the decomposition of nitrogenous matter. These facilitate the decomposition of chloroform and ether. The cause of the cough which often troubles the patient delays the operator in the operation.

The rule should be to employ no alcohol charged with amylic bodies, this producing the harsh spirit, the other the mellow, the safest and best for the patient, producing a more steady and satisfactory result both in the time of the operation, the health of the patient, and as a stimulus to the after-healing process.

15, Princes Square, Plymouth.

British Journal of Dental Science.

LONDON, FEBRUARY, 1876.

WITH the next meeting of the Odontological Society to be held on February 7th the members will find themselves under a new rule, according to an alteration in the laws, by which the President may be elected from the general body of the members instead of, as formerly, by rotation from the Vice-Presidents; and as from this and other recent alterations in the customs of the Society, as well as from various rumours that have reached us, change seems to be the order of the day—whether for better or worse time only can show—we would venture, whilst its rulers are in this mood, to suggest a few other changes which might possibly be beneficial to the Society, and perhaps through it to the whole profession; indeed, it is in the interest of our country friends that we would chiefly move. The London men have nearly all the advantages and honours of the Society in their own hands, even to the Presidency; and until some little more consideration is shown for our provincial brethren, the Society can scarcely claim with justice to be called "of Great Britain." We would therefore urge a re-perusal and consideration of the suggestions we offered in our issue for June, 1875. They may not all be considered reasonable or feasible, but we will at least reprint them, for the chance that they may prove suggestive of some improvements in the constitution of the Society, which are evidently needed to meet the views of many country practitioners, and even of some recently elected members of the Council. The following is the extract we refer to:

"First, we would suggest that every country member should in the turn of his seniority in the Society be elected to serve upon the Council, and that, seeing that distance and time prevent their frequent attendance thereat, a larger number of provincial men might be so elected: thus, as we have three London Vice-Presidents and three from the country, we would in future have four or six provincial Vice-Presidents, and instead of nine London Councillors and only six from the country, we would have at least an equal number, and indeed would prefer to see twelve provincial Councillors. We should thus give a larger number of gentlemen a *personal* interest in the well-being of the Society, and entitle it still more to the right of being called " of Great Britain," and, indeed, as we said before, it should be added, AND IRELAND.

"Nay, we would go further and suggest that the laws should be so altered that at certain intervals, say, every third or every fifth year, the President should be elected from among the provincial members, or at least from among the Vice-Presidents, taking each of the three kingdoms in turn. It cannot surely be doubted that any provincial practitioner elected to the honour of the Presidency would find it an easy matter to attend one evening a month for eight months, and in the event of unavoidable absence a better chance would fall to the Vice-Presidents, as has lately unhappily happened, to learn the duties they may one day be called upon to fulfil.

"Again, in the annual election of Council and Officers, and on other questions, the personal presence of voters should not be insisted upon for non-resident members, but they should be allowed to send in their voting papers to the Secretary. We venture to say that some such new regulations would go far to increase the popularity of this Society in the provinces and neighbouring kingdoms, and yet that no fears need be entertained of country practitioners obtaining an undue preponderance of the Council. Moreover, instead of merely electing to the Council gentlemen who had rendered service to the Society by reading papers, &c., we should act upon the principle of "*Noblesse oblige*," and leave it to the President and Secretaries of the year to urge upon provincial elects that, being so honoured, it was to be hoped they would bestir themselves and contribute somewhat to the general good. In further advancement of this purpose we would suggest one more addition to the list of officers, and that is a provincial Secretary, residing in some central locality, who should be nominated by the provincial Councillors, and should make it his business to work them up in turn to exert themselves for the benefit of the whole community; indeed, *re-elections* at any future time should depend upon such exertions."

We will now venture to make yet another suggestion; and that is, that the time of the annual meeting should be altered, so as to correspond with the opening of the Session in November, so that the new President and Council should be nominated in May, elected in June, and commence their official year in November. This would give the new President and Secretaries ample time to prepare for the coming Session, and at a period when they would be less tramelled with the cares of practice; and surely no one worthy of the honours of office would grudge for one year devoting a little of his holiday time to preparation for a year of official responsibility. We have no wish to curtail our new President in his term of office, but would desire to see the matter considered during his reign, and arrangements made to commence the new system with some yet unnamed Vice-President who should be elected to the chair. As it seems now that it is to be the fashion to re-elect every alternate year a former President, it would be perhaps more just that such a curtailed year should fall to the lot of one who has already tasted the sweets of high office for a full period. It seems to us that there are some advantages to be gained by the adoption of this plan over and above those we have named; but as probably they will occur to the minds of our readers, we will for the present at least refrain from indicating them, preferring to wait awhile, and see what others may have to say upon the subject.

Literary Notices and Selections.

Diseases of the Nose and its Accessory Cavities. By W. Spencer Watson, F.R.C.S. Eng. London, 1875.

This is a handsome, well got-up, profusely illustrated surgical work, with which at first sight one would suppose the Dental surgeon had not much to do; but inasmuch as the author devotes an entire section to the consideration of the antrum as one of the accessory cavities of the nose, and the work contains besides much useful information in relation to parts adjacent to the mouth, we cannot pass it by unnoticed, and, indeed, would recommend Dentists to add the work to their bookshelves.

In treating of the antrum the author divides the subject into six parts, viz. 1, anatomy; 2, injuries and lodgment of foreign bodies; 3, abscess of or suppuration in the antrum; 4, cysts; 5, solid tumours; 6, treatment of polypi and solid tumours in the antrum.

In the anatomy section due mention is made of certain contributions on the subject to the 'Transactions of the Odontological Society,' and to an interesting collection of casts of the interior of the antrum which is to be seen in the museum of the Odontological Society.

In the second and third sections notice is taken of the danger arising from the presence of foreign bodies, such as lint, &c., passing through the socket of an extracted tooth; the slipping of the roots of a tooth into the antrum during an attempted extraction, and the effects of a bad condition of the teeth on this cavity, are among the subjects treated of.

In the fourth section, on cysts in the antrum, much useful information to the Dental surgeon will be found. This and two succeeding sections on tumours of the antrum and their treatment complete an excellent and well-illustrated *resumé* of the whole subject, which we commend to the notice of our readers.

The recent medical papers contain so many articles of great interest to Dentists that we have given our readers an extra sheet in small type in order to be able to bring these articles under the notice of our readers without excluding other matter.—[Ed. B. J. D. S.]

CLINICAL LECTURE ON A CASE OF CYSTIC DISEASE OF THE LOWER JAW,*

Delivered in University College Hospital,

By Christopher Heath, F.R.C.S.,
Holme Professor of Clinical Surgery.

Gentlemen,—The patient whom I bring before you, before sending her to Eastbourne, is the woman upon whom, a month ago, I performed an operation for cystic disease of the lower jaw. She was sent to me by Dr. Parsons, of Dover, and was admitted on November 3rd, 1875, with the following history. About nine years ago, the patient first noticed a lump of the size of a pea beneath the tongue, on the right side, which gave her some pain, and for which a tooth was extracted. From that time she had a succession of abscesses (?) in the lower jaw, some of which discharged in the mouth, and one externally, and for which she had had several teeth extracted. Dr. Parsons sent her to me three years ago, and I then recommended her to come into the hospital; but she declined, and went on with a steadily increasing tumour of the lower jaw on the right side. About nine months ago the tumour seems to have begun to increase with some rapidity, and, two months ago, the following characteristic event happened. While eating, the patient felt a sudden crack in the lower jaw, and this occurred twice in the same week; and upon each occasion she felt great pain in the floor of the mouth and upon moving the tongue. Upon admission there was really very little to be seen externally, and I show you a photograph taken at the time to remind you of the fact that, excepting a very small projection beneath the skin in front of the angle of the jaw, there was nothing to call attention to the patient's face. On looking into the mouth, however, the tumour was at once obvious; and I show you a cast taken from the jaw at that time (Fig. 1). The right side of the lower jaw is seen to be greatly expanded from immediately in front of the ramus to beyond the median line, the tumour measuring two inches across at the broadest part, and reaching under the tongue. Its surface was lobulated and rounded, firm and osseous in the greater part, but yielding distinctly on pressure in two or three places. The mucous membrane was entire over the tumour, except at one point where there was an opening, from which a discharge constantly exuded. The incisor teeth of the right side were displaced over to the opposite side, and were loose. The central incisor of the left side was displaced completely in front of the other teeth. The left canine and bicuspids were firmly fixed. Now, any one superficially examining this case, without carefully manipulating it throughout, would not unnaturally have regarded it as a case of solid tumour, probably osseous, requiring the removal of a considerable portion of the lower jaw. It became obvious, however, on a careful examination, that the bone was thinned and expanded by some growth within it, and that this was cystic in its nature was shown by the distinct fluctuation of the nodule projecting on the face and the constant escape of fluid within the mouth. The "cracks" experienced by the patient two months before were very characteristic of bone expanded and thinned by cystic growth within. Notwithstanding the size of the tumour, the outline of the lower border of the jaw was scarcely interfered with, the disease being mainly confined to the alveolar portion of the bone; and I, therefore, decided to operate from within the mouth, so as to avoid, if possible, all external scar.

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* We are indebted to the courtesy of Mr. Christopher Heath for the use of the engravings illustrating this article.

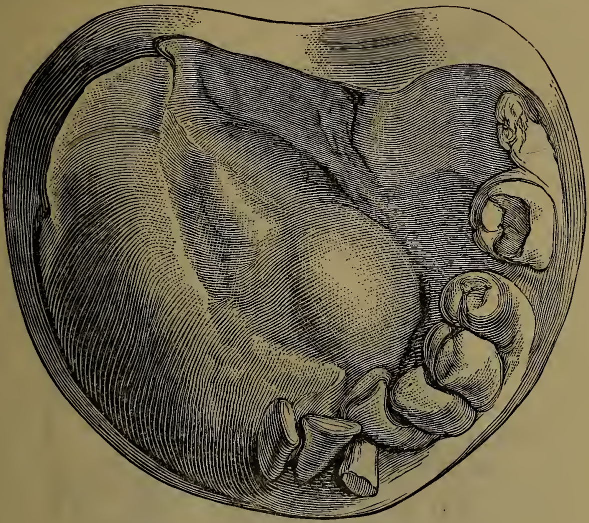


Fig. 1.

On November 10th the patient was put under chloroform (ether being unsuitable for prolonged operations on the mouth), and, a gag having been introduced on the left side, I first extracted the four incisors, and then made a free incision with a stout scalpel along the upper surface of the tumour, cutting easily through the thin bone and thick membrane forming its upper wall. A quantity of dark-coloured cystic fluid at once escaped, and I then cleared out the semi-solid contents with the finger and gouge. The finger introduced into the cavity passed completely under the canine and bicuspid teeth [of the opposite side without disturbing them. I next cut away a portion of the cyst-wall with scissors, and crushed together the remainder as far as I could with my fingers and thumb. The actual cautery was applied to one spouting vessel in the margin of the alveolus, and the cavity was stuffed with lint dipped in chloride of zinc (twenty grains to one ounce).

The patient had very little constitutional disturbance; the plugs were gradually removed from the cavity of the jaw, which was carefully syringed out frequently with Condy's fluid, and soon began to granulate and fill up. At the present time (December 6th) the right side of the lower jaw is still somewhat enlarged, and a bony rim can be felt at the point near the angle where the cyst projected externally, the hole being filled up by soft tissue. Inside the mouth the two plates of the lower jaw have come together, and the cavity is filled up almost completely by elastic granulation-tissue, there being only a shallow cavity half an inch long still to be filled up midway between the angle and the symphysis.

This, then, was a case of cystic disease of the lower jaw running its course for nine years; for, no doubt, what the patient describes as abscesses were discharges of cystic fluid taking place from time to time. Originating in the sockets of the teeth, the disease gradually expanded the entire alveolus and extended across the median line. In the museum of St. Bartholomew's Hospital is a beautiful macerated specimen, of which I show you a drawing (Fig. 2), in which the skeleton of a case similar to our own is well seen.

You will observe that the whole of the alveolus of one side is expanded, and that portions of the bone here and there are wanting, it having been thinned and absorbed, as in the case before us.

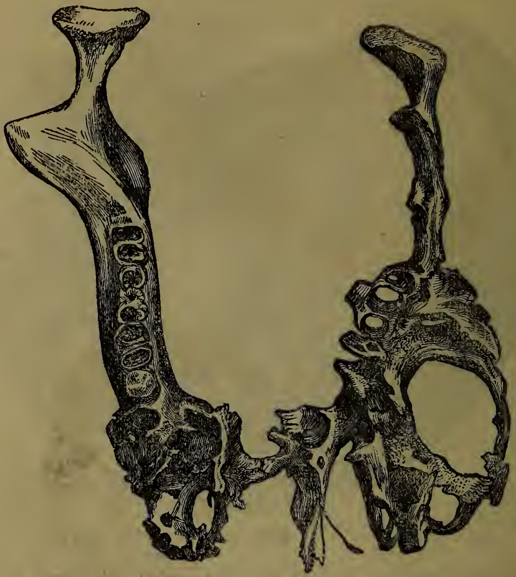


FIG. 2.

But, in addition to this form of cystic disease, there is another which affects both upper and lower jaws, and is found in connection with non-developed or ill-developed teeth; and these cysts are called "dentigerous cysts." An early recognition of these cases is very important; their treatment is simple enough if their nature be recognised, consisting merely in opening up the cyst and extracting the misplaced tooth, after which the parts soon contract and heal up. The growth of these tumours is slow and, for the most part, painless, and their recognition is generally guided by a careful examination of the teeth. If a tooth be absent, or if, as sometimes happens, a temporary tooth occupy the position of a permanent one, the tumour in its neighbourhood is in all probability a dentigerous cyst, and no mutilating operation should be undertaken without first opening up the tumour to discover its nature. But, in the lower jaw, especially where the two plates become gradually expanded without much absorption taking place, the recognition of a cyst may be difficult, and very excellent surgeons have been deceived by such cases. The drawing I show you (Fig. 3) is from a specimen now in the College of Surgeons, which was removed in error by a late eminent provincial surgeon (Mr. Fearn), who had the courage to publish his case as a warning to others.* The patient, a young girl of 13, had a large, apparently solid, tumour of the lower jaw, which, when amputated, proved to be a thick-walled cyst, containing the canine tooth, as seen in Fig. 4. Similar cases have been recorded in the practice of other surgeons.

Again, cysts of large size may be found in connection with solid tumours of the lower jaw, constituting cystic sarcoma, and of this I had a good example four years ago in a young man, whose photograph I show you (Fig. 5). In this case the cyst was quite obvious; but the solid tumour necessitated amputation of one half of the jaw, from which the patient made a good recovery.

And now as regards the pathology and treatment of cystic disease of the lower jaw. You will remember that I removed a portion of the wall of the cyst from our patient, and this I submitted to Mr. Gould for careful microscopical examination, his report being as follows:—"The piece of the cyst-wall that was removed is one third of an inch thick. On section, it appears lobulated, the lobules being separated by fibrous bands and containing minute cysts. On microscopical examination, a section of the cyst-wall shows a glandular structure. There are coarse fibrous bands dividing the tissue into well-marked alveoli of various sizes and of a rounded shape, which are lined by a single layer of indistinctly columnar cells, and filled with rather smaller granular cells. One of these alveoli is seen in the section developing into a cyst." This description corresponds very closely with that given by Mr. Wagstaffe of his examination of a specimen of cystic sarcoma of the lower jaw, and with that of my case of cystic sarcoma just referred to, which was microscopically examined by Mr. Beck. In all three cases the glands of the

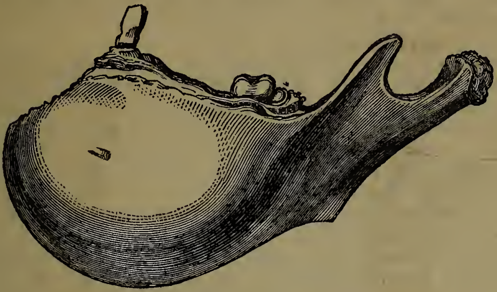


FIG. 3.

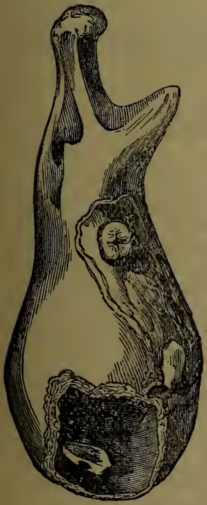


FIG. 4.

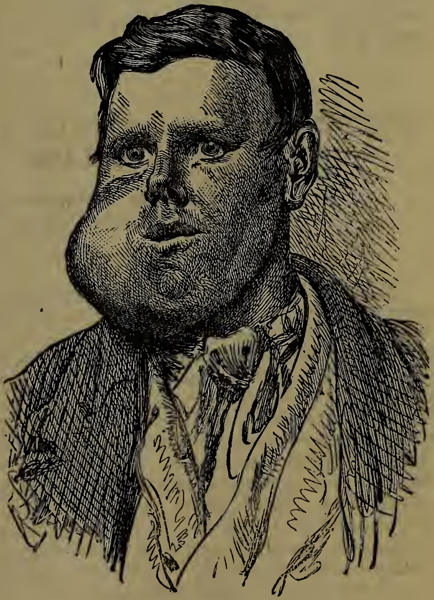


FIG. 5.

gums seem to have been the starting-point of the two diseases, which may be taken to be primarily the same. In the case of compound cysts, the cystic element predominates, and the glandular element is found only in the thickened cyst-wall; while in the cystic sarcoma the glandular element undergoes great hypertrophy, and the cysts may be developed in one portion of the tumour or scattered throughout its substance.

As regards the treatment of these cases, simple puncture of the cysts from time to time may be resorted to as a palliative measure; but a radical cure can only be effected by more active measures. Of course, it is most important to avoid any external incision, if practicable, and it is quite possible, in the majority of cases, to do all that is necessary from within the mouth with knife and gouge, particularly the latter instrument. Mr. Butcher, of Dublin, who is a strong advocate of this practice, gives the caution to avoid wounding the facial artery within the mouth, because of the difficulty of securing it in that position; and he shows that, when the disease is found to be too extensive to be treated satisfactorily from within the mouth, a single incision below the jaw is sufficient for every purpose. The plan I adopted of crushing in the bony walls of the cysts is that recommended by the late Dr. Mason Warren, of Boston, and gave very satisfactory results, a few minute spicula of bone being detached and coming away in the course of the treatment.—*Brit. Med. Journ.*

FURTHER OBSERVATIONS ON HARELIP AND CLEFT PALATE.

By Sir William Fergusson, Bart., F.R.S.,
Surgeon to King's College Hospital, &c.

(*Continued from p.* 24.)

In April, 1874, my experience of the supposed new operation extended to only three or four cases. It seemed to me so likely to be of service in cases which I had abandoned in despair, that I felt it a duty as well as a pleasure to let my professional brethren know as much as I could communicate at that early date. The number in which I have now had similar experience amounts in all to eighty-two. This experience is larger than I could have anticipated in less than twenty months' time, but it may be considered the more valuable on that account, both as regards numbers and freshness of work. The results have been such as to induce me to consider the process which I recommend as a vast addition to our surgical resources in this special department. In the above number (eighty-two) fifty-six are cases treated for the first time; the remainder are instances where further manipulative interference has been required, including examples of holes, large or small, in the hard palate, which I had left as beyond help from surgery, excepting by means of an obturator, associated with defect of teeth in front. In two of these I consider the proceeding to have entirely failed. In these, each patient was only four years of age, delicate, and with a wide gap. Although mechanical approximation in the middle was satisfactory, union by the first intention failed. Inflammation seemed greater than could be desired, and slight necrosis took place in each, so that the gap was left even wider than before. In several instances, particularly in the early operation before precision in the use of the chisel had been acquired, one or possibly two small pieces of bone came away necrosed, but, considering how the chisel has been freely used in some of these cases, I have been astonished how little damage has been done to bone. In some instances, union failed both in hard and soft parts from unaccountable causes, just as happens, from time to time, when the soft palate alone is involved; this is seen sometimes even in favorable cases of harelip, but my success has been such that I feel great confidence in the successful result of almost every instance of well-performed operations of the sort. Where holes and slits have been left either in hard or soft palates, or where union has been defective in the uvula, such defects have usually been amended at one or more subsequent operations, to which patients have readily submitted, owing to former immunity from pain under chloroform.

In one instance, an attack of scarlatina thwarted my best efforts; and in another, unhealthy inflammation arose after three operations, and ulceration marred, in some respects, the completeness of the proceedings.

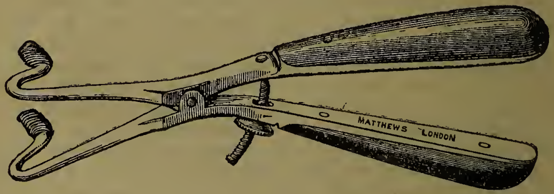
The cases in the hard palate, which have given me most trouble, have been where the vomer has been extensively attached to one side. In most of such cases the vomer diverges to one side. The palate can here be as readily split as if no vomer were present, but two objects of the splitting cannot be obtained; the margin of the palate can scarcely be drawn towards the middle, and the flap cannot be brought downwards to meet its more movable fellow. This has been a cause of failure which I did not at first appreciate; but subsequently I have achieved success by chiselling on one side, and paring off the soft tissue from the hard palate, on the side where the vomer was, and stitching it to the more substantial flap on the other side, thereby combining the new and old processes, with benefit to the patient, and some additional credit to our surgical resources in this locality.

Mr. MacCormac has most obligingly laid before me most of the German authorities on the subject. Although Dieffenbach suggested the operation in 1826, no case of his has been recorded. It seems to have been put into execution for the first time in 1834, by Bonn, with success. Langenbeck, from 1849 to 1856, operated in three cases, but definitively abandoned this proceeding. Two cases of openings in the hard palate, from syphilis, have been operated on by Bühring on similar principles, but unsuccessfully. Between 1826 and 1856, some half dozen cases have been recorded by German authorities, in which the hard palate seems to have been cut by saw, knife, and chisel; but altogether the circumstances may be considered so different from those which I have described within the last twenty months, that there is but little resemblance between them. Muscular action, particularly that of the levatores palati, is not even referred to; the use of anæsthesia or a gag is not alluded to in any of them, nor in the attitude of the patients —which I consider a great element in modern staphyloraphy.

Here, however, is what I contend for in support of my paper of April 4th, 1874, in bringing forward fifty-six original cases operated on, chiefly in accordance with the views therein propounded since that time, all of which, with a few exceptions above referred to, have been successful. In a considerable number of these cases, further operations have been required, and many of these were of a kind which, under former views, admitted of no remedy, excepting by artificial plates. The further interference in these cases has been such as to induce my assistant and registrar, Mr. Rose, to put down each as an operation; because, in each such instance, chloroform has been used, and the whole manipulative process on the hard palate has been in a manner repeated. Edges have had to be made new again, stitches introduced, and chisel applied. My reasons for stating that the circumstances of twenty or forty years back are different are, that, in former times, as far as I can understand, the patients were seated upright; now, in my practice, they lie on a table; then there were neither gag nor chloroform, and in these I am of opinion that much of our modern improvements in practice consists. In my former paper, I had pleasure in according to my friend, Mr. Thomas Smith, of St. Bartholomew's, the merit of introducing the use of chloroform and the gag in these operations; and I feel further bound to repeat my admiration for his forward movement in regard to these almost essential adjuncts.

Experience has led me to make some modifications in practice formerly described, which I fancy worthy of the object of this present paper. In dealing with a cleft in soft and hard palate, I still adhere to my preliminary division of the levator palati on each side; but if from the size of the gap in the hard palate it be deemed needful to introduce one, two, or more stitches, I advise that the holes for them be bored with the bradawl, and that the stitches be introduced before the chisel is applied. I think it an advantage, too, to make the edges of the gap bare before loosening the portions of the palate with the chisel. If these parts be made loose first, it is very difficult to push a bradawl or needle through, and there is great risk of one or both slipping, so as to separate periosteum from bone and endanger the occurrence of necrosis. This I believe to have been the cause of the misfortune in the two cases above referred to, when the operations signally failed. But I fancy I have further modifications and improvement to impart here. Recent experience has led me to the fact that stitches may not be necessary in many instances of cleft in the hard palate. I have found again and again that, when the edges of the gap have been pared and the chisel introduced, it answers to cause approximation of the raw margins by stopping the opening made on the hard substance by the chisel, with lint, so as to make the desired closure in the centre. The pledgets of lint keep the parts as steady as, if not more so, than the stitches, whilst they obviate the necessity of the additional injury to the stitch-punctures. This practice, I am confident, is available in all instances when the opening in the bones is of brief extent, as the front stitch in the soft palate may be put in close behind the posterior margin of the bones.

In my former paper I referred to gags, and particularly to those of Mr. T. Smith and Mr. Wood. For various reasons, which need not be dwelt on here, I have set these aside in favour of a more simple apparatus, chiefly suggested by my friend, Mr. Mason, of St. Thomas's, and in a manner perfected by Messrs. Matthews, instrument makers, in Carey Street, which I strongly recommend as the best I have yet seen for the operation in question. In fact, I consider the gag as an essential instrument for the modern proceeding, for without it chloroform would be worthless. This sketch shows the instrument in question.



The narrow blades are introduced, shut, between the teeth on either side the surgeon chooses, and are opened by pressure on the handles at the will of the assistant who holds them. The power of the instrument is such that, if care be not taken, the lower jaw may actually be luxated, as I have seen more than once, although, happily, with no permanent evil. There is a peculiar twist in the blades of this instrument as regards the cheek and margin of the mouth, which can be better appreciated by looking at them in action than from any description that might be given here. The length of the whole instrument is about seven inches, and it will be useful to have two, one slighter than the other, to suit the mouths of patients from four to ten years of age. This gag will be found of much value in many operations about the mouth and tongue, and I presume to say that it will prove a valuable aid to the Dentist.

On thinking over all that I know of these matters, and especially as regards my own humble work, I am impressed with the slowness with which facts and improvements have come upon my mental conception. I believe that I was the first who dissected and described the anatomy and physiology of cleft palate (cleft, be it observed), yet five years or more passed before the simple mechanical value of the information thereby obtained dawned on my mind. Neither the action of the levators in tugging upon the stitches, nor that of the superior constrictors of the palate in closing the cleft during deglutition, were thought of; but happily, when tenotomy and myotomy were in the full swing of novelty and fashion, I bethought me of my old dissection, which, having been fortunately preserved as unique, gave me the opportunity of further study and reflection. Yet, even now, after a comparative calm in my own mind, I am amazed at the slowness with which point after point has gradually come upon me in an experience of between three and four hundred operations, including old fashioned and new. The latter observations have been more impressed on my mind within the last two years than at any previous date.—*Brit. Med. Jour.*

CLINICAL LECTURE ON THE SCOPE OF DENTAL SURGERY,

Delivered at King's College, London,

By Hamilton Cartwright, M.R.C.S.,
Professor of Dental Surgery at King's College, and Lecturer at the London School of Dental Surgery.

The duty which devolves upon me of giving you a course of clinical lectures and demonstrations on Dental surgery is a peculiarly pleasant and congenial one, inasmuch as I have to address a body of gentlemen who are studying medicine and surgery in a general hospital, upon a subject which has been looked upon too much in the light of a specialty, more separate than other specialties from medicine, and which I fear, as a rule, does not meet with that measure of attention which is its due; although, if you would give even a very small proportion of your time, in comparison with that allotted to your other studies, to its consideration, I am certain you would thereby render yourselves good service in a future day. I fear that there are too many not only of those who are without the ranks of that branch of surgery which I profess, but also of the less highly cultivated practitioners within them, who seem to think that the practice of Dentistry merely implies the filling or extraction of teeth; and I must confess that I have often been surprised at the ignorance of intelligent members of our profession in relation to diseases of these organs. Feeling strongly as I do, as a surgeon, the *rapport* existing between this specialty and general surgery, I shall attempt to show you today, in this Introductory Lecture, the necessity, on the one hand, that the Dental practitioner should not only be a fully qualified but also an intelligent surgeon, and, on the other, that the general surgeon, ay, and the physician too, may derive some benefit from studying those diseases, direct or indirect, which have their origin in morbid or abnormal conditions of the dental structures. You all recollect the fable of Menenius, wherein he pointed out to the dissentient plebians the harmony existing between the various parts of the human frame, applying the moral of his story to their divisions with the patrician body of the state. Now, the teeth are in as intimate relation with the body generally as is the eye or ear, and their morbid conditions can only be treated rationally upon such acknowledgment. The oculist and the aurist are fully qualified practitioners. The Dentist should be so also, and it seems to me ridiculous that men should cavil about their status and position in the social scale, if they do not choose to educate themselves as other specialists are educated. The teeth must not be looked upon as mere pegs or nails inserted into living strncture, but as organs having the most important relation to the whole system; and I think that I shall be able to prove to you that there is not a period in life when some knowledge concerning their development and condition may not be of service to you in any branch of practice, whilst the special objects of my future demonstrations will be to give you practical illustration of the treatment and diagnosis of cases quoted here, and to show you those operations which, having for their object the relief of pain or the arrest of disease, may be especially useful to those in country practice, or to those about to be engaged in the naval or military service of their country.

First, consider, with me, the position of the maxillary bones, in which the teeth are implanted. Consider with how many nerves, with their attendant ganglia and plexuses, those teeth have connection. On each side, the oral cavity is in close proximity to the internal end external ear. Above, it is in near relation to the orbits and that oft-troublous cavity the antrum, which is again in contiguity with the nasal fossæ, the contents of which are frequently affected as a result of Dental disease; whilst, finally, the continuation of the oral aperture leads to the stomach, in which arise, should assimilation be imperfect, the first causes of faulty structural development, or in which are produced, if dyspepsia exist, those acids which, being eructed into the mouth, constitute a local source of Dental lesion; whilst the unhealthiness of the mucous membrane of the gums may serve as a valuable means of diagnosis in various morbid conditions of the gastro-intestinal mucous track.

The necessity of some knowledge of Dental surgery to the general surgeon, and of medicine to the specialist, is shown from the earliest period of existence. Caries and imperfection of tooth-structure are to a very great extent, I regret to say, diseases of civilisation; and my experience as a traveller in many parts of the world has taught me how much influence climate and *modus vivendi* have, not only upon the condition of the teeth, but upon the body generally.

As a rule, the savage or aborigine scarcely suffers from Dantal lesion, save in those instances where the conditions of his life are peculiarly adverse to constitutional integrity. The freedom of the aborigine from disease undoubtedly depends, to a great extent, upon the healthy life he leads. His hours are regulated by the rising and setting sun, whilst his occupations all conduce to health; but when the country is notoriously unhealthy, his system is affected by the existing factors of disease. Thus it is remarked that on the eastern side of the Rocky Mountains, where the climate is healthy and bone-forming food abundant, caries is unknown; whereas, on their western boundary, where animal food is very scarce, and the vegetable diet deficient in those elements which are the chief ingredients of osseous tissue, disease is not unfrequent. Mine has been the same experience in relation to the Zulu and Bosjesman tribes in Africa, and also with regard to various parts of China. If you ever happen to be near Hythe, in Kent, and will visit the old church there, you will see hundreds of the skulls of our Anglo-Saxon progenitors, and will find that their maxillæ are well developed and firm in structure, with not a tooth decayed in young or old; and in this specimen, at least two thousand years of age, found in a sarcophagus during excavations made at Cumæ some short time since, you see another proof that the changed conditions of modern life present important factors in the induction of disease. If you will examine more modern skulls, a very different story will present itself, decay revealing its ravages on every side. The causes of this disintegration of tissue are numerous. Change of climate may alike produce or arrest disease; thus, when the healthy Irishman or Scotsman quits his home for another habitat, where potatoes and oatmeal, rich in bone-material, are not abundant, in a few years he suffers from disease alike with those amongst whom he has sought another home; whilst, on the other hand, another person may regain new health in another clime, and the tendency to disease may cease. The argument from these facts is that, inasmuch as it is proved that a constitutional condition can exist in which the teeth may be free from caries, there is no reason why, if we discover the conditions of this immunity, we should not be able, in the course of a generation or two, to bring about a like result; for all evidence tends to prove that there are constantly recurring changes of waste and repair taking place in the dental tissues as in other parts, though naturally their structure forbids these being as rapid as in other tissues. I am confident that the prevalence of dental disease in the present day is in no small proportion of cases a direct consequence of the way in which our food is over-refined and prepared, so much so that it is too frequently almost entirely deprived of those elements which are most requisite for the formation of firmly knit bones and healthy muscle; and I fear that parents will never be taught to understand, until they are instructed in the elements of physiology and hygiene as a part of their education, how often they are unwittingly responsible for the sufferings of their offspring. The bread of our Anglo-Saxon progenitors was prepared of crushed meal, in which the husk and the flour were mixed up together, so that all the necessary constituents for tissue-formation were retained, with such results as those to which I have alluded. The pregnant mother should be enjoined to make use of food containing an excess of nitrogenous material, so as to counterbalance the extra demands upon her blood for those inorganic particles which are necessary to build up the framework of her child. The child being born—and it is after birth that the greater portion of the bony framework is deposited—its digestion and its powers of assimilation must be carefully considered in determining the character of its food; whilst, in later years, it should be amply supplied with ossifacient material, such as eggs and potatoes, and, above all, if its assimilative powers be intact, bread made with the bran. But the treatment of the child ought to commence with that of the parent during her pregnancy; and to make her submit to this, she must be taught the responsibility which her condition imposes upon her in regard to the welfare of future generations. Could this be done, in a generation or two many constitutional defects might be blotted out, and notably diseases like rickets, scrofula, and caries. I have had the good fortune to have some few children under my care from early childhood; and, by judicious attention to their digestive and assimilative powers, I have been enabled to arrest those ravages which, I am convinced, would otherwise have maintained their sway until nearly every tooth had been destroyed.

Let me next consider the subject of teething, a period so fraught with danger to the child, that no less than 5 per cent. of the deaths under one year, and 7 per cent. of the deaths between that period and three years, are ascribed to dentition. At this epoch, when the spinal predominates over the cerebral system, the slightest sources of irritation may lead to fatal results; for that which causes a shudder in a man may produce a convulsion in the infant. The symptoms of dental irritation may be confounded with congestion or inflammation of the brain and its membranes, and in some cases a mistaken diagnosis might be of serious import. Whilst cursorily alluding to the maladies which are dependent upon, or synchronous with, the eruptive stage, I cannot but draw your attention to the empiricism often exhibited in lancing the gums, that favourite method of treatment for actual or supposed dental irritation. There is little doubt that the gums are not only lanced during those periods of repose which characterise evolution, or when the osseous structure of the maxilla still remains unabsorbed over the advancing tooth, but that, as a rule, this operation is performed simply because, in a few cases, the relief of tension in congested tissue has sufficed to relieve an attack of convulsions. Where the tooth is just beneath the gum, or where there is manifest congestion, the incision of the parts may be productive of much benefit, but otherwise it is a procedure not only useless but barbaric. Retardation in development of the teeth is also a means of indicating future disease; for example, when their eruption is delayed beyond nine months, there is every reason to suspect that the child is suffering from rickets, a valuable means of diagnosing that disease for which we are indebted to Sir William Jenner. Next I must mention some of those diseases connected with the teeth which characterise a later period in life, than which none is of greater importance to the practitioner than neuralgia. If you will recall to mind the extensive sympathetic connections of the trigeminal or fifth nerve, it will not seem strange to you that the teeth should be often connected with reflex phenomena leading to simple spasm, neuralgic pain, or even epilepsy, whilst, in nine cases out of ten in which neuralgia attacks the upper extremity, a dental lesion will be found to be the exciting cause of irritation. This disease has the epithet "idiopathic" far too often applied to it; for in nearly every case a cause exists, though it may be concealed from us, whether it has its origin in the filament of nerve ensnared by cicatrix, in a hidden splinter or a lurking parasite. Doubtless, you are all familiar with a case quoted by Sir Thomas Watson, of a well-known physician who was forced to relinquish an extensive practice and a distinguished position through the terrible agonies he suffered as a consequence of tic douloureux. Every remedy was tried in vain, until death revealed the cause, which existed in a small osseous excrescence upon the falciform process of the dura mater. If I could lay down an axiom with regard to the treatment of neuralgia, it would be, "Never rest until you have found the cause;" for it will often discover itself when least expected.

[Mr. Cartwright here related a case under his care, in which he found severe neuralgia of the parts supplied by the cervical and brachial plexuses to be due to the presence of a small piece of glass in a swelling over the third phalanx of the second finger of the right hand, the removal of which permanently cured the neuralgia.]

Like sources of irritation exist very frequently in diseased or abnormal conditions of the structures of the teeth, and my experience teaches me that this is a fact not sufficiently appreciated by medical men. The ordinary treatment of neuralgia is far too often empirical. One specific is tried after another with varying success, until all fail, whilst the oral cavity, so rich in explanations of reflex pain, is quite forgotten or overlooked. Caries is by no means the most frequent source of neutral pain; for it is often to be found in exostosed cementum, or as a result of secondary dentine formed within the pulp; whilst, yet again, an osseous excrescence growing from the dentinal wall may, by its pressure on the nerve, be an exciting cause, as in the case of this beautiful and unique specimen prepared and kindly lent to me with others by Mr. Salter. It is sometimes difficult to discover the offending member; but a gentle tap, the alternate use of hot and cold water, or, if the pulp be sphacelated in a non-carious tooth, the appearance of opacity on exposure to a strong light, will make the culprit doff its disguise, and reveal a traitor in the camp.

Amongst my notes, I have recorded the case of another patient who had long been the subject of intractable neuralgia in the head and face. She had been in the hands of celebrated physicians, of quacks, of homœopaths and hydropaths, but with no relief. The pain invariably had its origin on the left side of the face, just over the molar bone. On examination, all her teeth seemed perfectly sound, and the tests mentioned above suggested no intimation of disease. One day, knowing my suspicions that the teeth might be the source of her trouble, she told me that she had an "undefined sensation" in one of the teeth, but she could not point out whether it was the bicuspid on the left side of the superior maxilla; but the renewal of the tests gave no sign of pain. After various experiments, I resorted to the use of a galvanic current, which made her say that she was certain that the canine was the tooth which had a different feeling from the others. Warned that the loss of the tooth would very probably not effect a cure, she begged me to extract it on the chance of relief being afforded thereby. I did so, and, if you will examine this preparation of the tooth under the microscope, you will see that the cause existed in an almost total ossification of the pulp. After a week, her pain entirely ceased, and not long since she described herself to me as sitting at an open window on a cold day at the seaside—a thing which she had not dared to do for several years. Of such cases I have seen many; and the immediate relief which occurs upon the removal of the exciting cause of pain makes me somewhat question the correctness of the late Dr. Anstie's view in relation to neuralgia, that the seat of pain is invariably situated in the posterior roots of the spinal nerves, and that an essential condition of the tissue of those roots in atrophy. Then, various diseases of the ear, the nose, and antrum, and even amaurosis, have had their origin in diseased conditions of the teeth, so that an oversight as to the source of mischief might lead to the loss or impairment of the functions of at least three of the organs of special sense. Mr. Hancock, of Charing Cross Hospital, mentions a very remarkable case of amaurosis dependent upon nothing more than an overcrowded condition of the teeth. Four of these were removed with such good effect, that the sight, which was nearly entirely lost, improved at once, and was again perfect within ten days. I could quote many similar cases, many of which have occurred in my father's practice, some few in my own, but would refer all of you who are interested in the subject to Mr. Salter's valuable work on 'Dental Pathology and Surgery.'

It must not be forgotten that the teeth are not only the sources of, but that they are not unfrequently the objects of, sympathetic irritation themselves, and have, doubtless, in the absence of adequate knowledge as to the cause of pain, been often condemned for the faults of other members, like certain unfortunate officers in a recent naval inquiry. Thus I have frequently seen a constipated condition of the bowels induce pain in the teeth; and in another case an attack of gout is always ushered in by intense dental suffering, which a dose of colchicum relieves at once; whilst I have long had a patient under my observation, who, suffering from hæmorrhoids, always has acute pain in his upper molar teeth when these become congested, which invariably ceases when an attack of hæmorrhage relieves the engorged vessels. Many of the tumours which afflict the maxillæ have their origin in a diseased root or an impacted tooth, these varying from the simple abscess to the cyst or odontome, in which latter tumour an appreciation of its character renders its removal the simplest of operations. A swelling occurring in connection with the unexplained absence of a member of the normal dental series should always suggest a hint in such cases, and it will be found that this class of tumour is invariably encysted, so that the removal of a little superficial bone will permit these growths to be enucleated with little loss of tissue.

Again, in a very large proportion of examples of abscess or neuroses connected with the maxillæ a local source of irritation exists, such as may be found in a wisdom tooth attempting fruitlessly to take its position where there is want of space, or, more often still, in the remnant of a fang over which the gum has grown. Such errors in diagnosis are frequently made with regard to patients of strumous and scrofulous diathesis, in whom the history of the case and the swollen glands too frequently mislead the unwary practitioner. Wherever there are sinuses in connection with the glands about the jaw, search for an errant root. You may have much trouble in discovering it; but, if you be successful, its removal will not only instantly cure the patient, but prevent that terrible disfigurement which is a result of abscesses in this position. I have witnessed the cure of long-standing suppuration diagnosed as scrofulous again and again by the extraction of a root, the presence of which was unsuspected by patient or practitioner.

Finally, every surgeon practising in the country or abroad, in place where special aid is not at hand, should be able to arrest pain and disease in the teeth, at least temporarily, whilst he should have some knowledge of the treatment of the milk-teeth, which he is often called upon to remove; indeed, with regard to the latter subject, his appreciation of the simple rule, never to remove a temporary posterior molar or canine without urgent reason, would alone prevent many subsequent deformities of the permanent denture.

Think how many teeth might be saved by the aid of a little special knowledge concerning their diseases. Such knowledge would be useful to all, but especially to those who are about to devote themselves to the preservation of the health of those who maintain England's glory and good name *per mare, per terras.* The agony which I have seen soldiers, and especially sailors, suffer from their teeth has been terrible, and in too many cases without a chance of satisfactory aid, unless it be by the extraction of the offending organs. By such unnecessary lossses men are incapacitated before their time, and it is from a feeling of pure humanity that I would insist upon the necessity of army and naval officers devoting a short period to the study of diseases of the teeth, thereby arming themselves with another weapon with which to combat pain and suffering. In future lectures I shall hope to have opportuntties of showing you examples of those direct and indirect results of dental lesion to which I have alluded to-day, whilst I shall especially demonstrate to you those operations necessary to alleviate pain or to arrest disease, whether temporarily or permanently, by more complicated means. My task will be a labour of love, if I can impress upon you the importance of my subject when considered in its highest *rapports;* whilst I shall feel that, in disseminating amongst you what little knowledge I possess, I shall be contributing in some small way towards the lightening of those burdens, and the assuagement of those many ills to which flesh is heir.—*Brit. Med. Jour.*

CHLOROFORM AND ETHER AS ANÆSTHETICS.

We have once more thought it our duty to test the prevailing opinion, and to ask for the experience of the leading practitioners engaged in the administration of anæsthetics, as to the relative value and uses of chloroform and ether.

We have now for many years drawn attention to the duty of publishing records of all facts bearing upon the relative mortality from the administration of surgical anæsthetics; and the number of fatal accidents put on record from chloroform in our pages has surprised the most experienced observers; although there is reason to believe that some surgeons and administrators of anæsthetics are still so ill-advised as to conceal their fatal or serious mischances. Our records for a long time have showed an average of one fatal case per month. We have felt bound now, since 1870, to press upon the profession, the propriety of giving a full trial to ether, as being, according to a great bulk of evidence, the safer and more reliable anæsthetic. It may be convenient to preface the following reports by a summary of our former conclusions and those of our correspondents in 1870-73. For this purpose, we reprint here an article from the pen of the late Dr. John Murray, containing such a summary, for which we are indebted to the 'London Medical Record,' of May 7th, 1873.*

"The persistent efforts of the editor of the 'British Medical Journal,' in advocating increased attention to anæsthesia and the claims of ether, have at length aroused the attention of the profession to the statements made in America and France of this anæsthetic; and at the present moment its claims to general recognition are being practically investigated in London and the provinces. The editor of the 'British Medical Journal' (November 10th, 1872), says that, 'in the face of the great mortality from chloroform, and of the almost deathless record of ether, it has become our duty to interpose, to call the urgent attention of professional men throughout the country to the claims which ether has upon their confidence; and to urge that the anæsthetic which was thrust out of repute by the ready and convenient fluid introduced by Simpson, shall have an extended and a fair trial.'

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* Since May, 1873, the following communications on this subject are to be found in the pages of the 'British Medical Journal.' In the second volume for 1873, by Mr. Clover, Mr. McGill, Mr. W. Brown, Dr. Bigelow, and Mr. J. Morgan. That number also contains a report of the discussion on the comparative advantages of ether and chloroform, which took place at the meeting of the British Medical Association in London. In the first volume for 1874 are notices by Mr. Clover, Mr. R. Davy, Dr. J. Carmichael, and Dr. W. Munro; in the second volume for 1874, by Sir J. R. Cormack, Dr. Marion Sims, and Mr. Clover; and in the first volume for this year, by Mr. Clover, Dr. Hoggan, Dr. Fifield, Dr. Skinner, Dr. Schiff, Dr. Blackwood, Mr. S. M. Bradley, Dr. W. Munro, Mr. F. Jordan, and Dr. T. Keith. There are also reports of deaths by anæsthetics in all the above volumes, which are to be found duly tabulated in the index of each under the heads "Anæsthetics," "Chloroform," and "Ether."

"It will be well to record some of the recently published opinions on which the present advocacy of ether in this country is mainly based.

"In America, ether has been for twenty-five years generally but not exclusively employed in preference to chloroform. Mr. Ashhurst, one of the leading authorities in America, says ('Principles and Practice of Surgery,' 1871): 'I prefer ether in a very large majority of cases; it is sufficiently convenient for almost every case that the surgeon is called upon to treat.' At the Massachusetts Hospital, a resolution was passed ('Neligan's Medicines,' by Macnamara) to the effect that the exclusive use of ether should be an absolute law of the institution. The Société de Médecine of Lyons have pronounced three times in favour of ether in preference to chloroform. M. Diday ('Gazette Hebdomadaire,' November 29th, 1872) says that chloroform has for a long time been abandoned in Lyons for ether; and that the latter has been found to answer very well, while the patients prefer it. He invites the surgeons of Great Britain to listen to the appeal made to them, and to furnish to the already convincing Lyonese statistics, counterproofs which would give them their full value. Dr. J. H. Packard, of Boston, says ('Boston Medical Journal,' April 12th, 1873), that, until 1864, his custom was to employ ether or chloroform indifferently. Now he believes ether to be not only perfectly safe, but wholly satisfactory as an anæsthetic. 'My firm conviction is that, if the profession in England give ether a fair trial as an anæsthetic, they will agree with the majority of the physicians in this country that it is as economical and efficient as its more dangerous rival. We have no right to imperil our patients' lives by the use of an agent which has slain over a thousand persons, if other and safer means are available.' The editor of the 'American Quarterly Journal of Medical Sciences' says that it is surprising that so many surgeons in England should have obstinately persisted in preferring the use of chloroform, notwithstanding the numerous deaths which have followed its use, and the strong array of evidence which has been adduced of the superior safety of ether. Dr. Joy Jeffries, of Boston, in a paper which he contributed to the 'Boston Medical and Surgical Journal' of October 3rd, 1872, relates his experience of ether inhalation as demonstrated by him in London during the meeting of the Ophthalmological Congress, and says that he 'foresaw the day when our English brethren would awaken to the danger of chloroform and safety of ether.' The editor of the 'Boston Medical Journal,' October 3rd, 1872, commenting on Dr. Jeffries' paper, maintains that, in the legitimate use of ether by inhalation, no *boná fide* case of death is on record, or ever has taken place, and that it is absolutely safe. He asserts that the complaints against ether made by English operators, that it produces insufficient relaxation of the muscular system and but partial insensibility, can only be explained by want of knowledge.

"Dr. Thomas Jones ('British Medical Journal,' November 23rd, 1872), after very long experience in ether and chloroform inhalation, thoroughly believes in the superior claims of ether as an anæsthetic; and is quite sure that, if fairly tried, ether will soon replace chloroform in this country as the anæsthetic in general use. Mr. Thomas Green, of Bristol (ibid., December 7th, 1872), feels so convinced as to the superiority of ether that nothing shall ever again induce him to give chloroform. Dr. William Alexander (ibid., December 14th) thinks that, by the late ventilation of the subject, ether has been restored to its pristine position. Mr. Frank Underhill (ibid., November 9th, 1872) is persuaded that the advantages which our American brethren assert ether to possess are fully proved by facts; and he believes the time to be close at hand when chloroform, except on special occasions, will be considered a thing of the past, and that the advantages of ether will be every day more conclusively demonstrated. Dr. J. Morgan, of Dublin (ibid., October 12th, 1872), has used it in all ages, from three to seventy-one years, from amputation to the most delicate operations on the eye; and ether has proved itself both most convenient and efficient, while it has been proved to be the safest of all anæsthetic agents. The arguments which have been urged against its use have been those only of its being inconvenient, and these have arisen from want of a perfect means of application?"

The information contained in the following reports is principally given under four heads, and has been elicited in order to ascertain the following points:—1. What anæsthetics are now in use; and for what cases is ether anæsthetic preferred? 2. What methods of administration are employed? 3. Has any change been made within the last four or five years in the anæsthetic use, or its mode of administration? and, if so, what were the reasons for the change? 4. Can any suggestions be made by the adoption of which the safety of the anæsthetised patient might be more completely secured, or any improvement in the production of anæsthesia for surgical operations be effected.

St. Bartholomew's Hospital.—Mr. Joseph Mills (Chloroformist to the Hospital) reports as follows. "The anæsthetics now in use at St. Bartholomew's Hospital are ether, chloroform, and nitrous oxide gas; ether preceded by nitrous oxide gas is used in by far the greater number of cases. Chloroform is used for very young children, and in operations about the mouth and nose which are likely to last some time. Nitrous oxide gas is employed for short operations, such as extraction of a tooth or opening an abscess. Nitrous oxide gas and ether are administered by means of Mr. Clover's apparatus, which is admirably adapted for the purpose. Chloroform is given on lint, from a drop-bottle. Until January, 1875, chloroform was used for nearly all cases; but I found that, while chloroform frequently depresses the heart's action in long operations, ether stimulates it. It rarely happens that there is any persistent sickness after the inhalation of ether; I have met with but one instance in nearly nine hundred administrations, and in that case it lasted about twelve hours, at the expiration of which time the patient was able to take food well. Ether does not appear to be much less likely to cause vomiting at the time of the operation than chloroform, but it certainly causes much less after-sickness. Chloroform is used in long operations about the mouth and nose, because, 1. The narcosis of chloroform lasts longer than that of ether; 2. In many operations, as for cleft palate or removal of the tongue, it is necessary to keep a gag in the mouth, which comes very much in the way of a face piece, such as is necessary for the administration of ether; while chloroform can very conveniently be given on a piece of lint;

3. In operations for cleft palate, too, there is another objection to the use of ether, in the fact that it excites a flow of viscid saliva, and is apt to induce coughing. In delicate operations about the eye, I prefer chloroform, as it causes less congestion. In cases of fracture which require an anæsthetic whilst the parts are being placed in apposition during the time the muscles are relaxed, chloroform is preferable, because patients recover from its effects quietly, the inhalation of ether being generally followed by a state of noisy delirium and struggling, which would be likely to displace the fractured ends and necessitate their readjustment."

Guy's Hospital.—Mr. Frederic Durham (Surgical Registrar to the Hospital) replies to the queries as follow—I. " In the surgical wards and surgery of Guy's Hospital, chloroform is the anæsthetic which is almost invariably administered; occasionally only, the mixture of alcohol, ether, and chloroform as recommended by the Committee of the Royal Medical Chirurgical Society, and, more rarely still, ether alone. In some cases, anæsthesia first produced by chloroform is continued by 'the mixture' or by ether alone; this especially in cases in which chloroform does not appear to be well borne. 2. Chloroform is given from a piece of lint, fitted into a metal nose-piece for convenience sake alone, a few drops being poured from a stoppered bottle as often as required. The mixture is generally given on flannel, adapted as the loose lining of a cylindrical paste-board or leather inhaler; and ether on a sponge at the bottom of a deep cylindrical leather inhaler fitting closely round the mouth. 3. During the last four or five years, all the anæsthetics, old and new, ether, chloroform, nitrous oxide, bichloride of methylene, the mixture of alcohol, chloroform, and ether, &c., have been used to a considerable extent at Guy's; but, chloroform being found much very the most convenient in administration, and, as a rule, well borne in surgical operations, and much less frequently followed by the disagreeable after effects — headache, vomiting, &c. — which were observed to be especially severe and prolonged in the case of ether, it has again become the anæsthetic in common use. In the eye wards, however, 'the mixture' is still generally administered."

Mr. Bader (Ophthalmic Surgeon to the Hospital) sends the following replies.:—" 1. For the last two years I have been using as an anæsthetic a mixture of alcohol one part, chloroform two parts, ether three parts. This mixture I have been using in all cases, both private and in the hospital. 2. It is given in a card-board cylinder, covered with flannel. 3. I have changed the anæsthetic, because I wished to make an experiment. 4. In many cases where the least sign of danger appears, we put from six to ten drops of the nitrite of amyl on a piece of lint, place it on the patient's nose and mouth, with the instantaneous effect of restoring the action of the heart and lungs."

London Hospital.—Mr. Lewis Mackenzie (late resident medical officer) sends the following replies:—" 1. The anæsthetic chiefly employed at the London Hospital is ether; it was introduced into this hospital in the early part of the year 1872, and has since been used in by very far the majority of cases requiring the production of complete anæsthesia. Some surgeons make exception to ether in certain cases. Mr. Jonathan Hutchinson prefers the use of chloroform in old people with rigid or brittle arteries, as he considers the arterial tension produced by ether a condition very likely to give rise to cerebral hæmorrhage. It will be remembered that Mr. Hutchinson reported a case of this nature when ether was recently reintroduced.

Chloroform is more used in the maternity department than any other of this hospital; but, in obstetric operations, ether has been chiefly given. Whilst resident accoucheur, I repeatedly used chloroform, and to the full surgical extent in cases of obstructive and operative midwifery. There never seemed any danger; and one has such a powerful reflex stimulus always ready to be acted upon in this class of cases that it is very rare to hear of any death from chloroform-administration during labour. In a severe case of post-partum hæmorrhage, ether seemed to improve circulation, and did not increase the bleeding. In cases requiring the application of the actual cautery about the face, the patient is generally placed under the influence of ether, and anæsthesia is kept up by the use of chloroform. In the eye department, in a few cases, ether has seemed to produce so much venous congestion of the eyeball and orbit that, in some of them (notably cataracts in plethoric old people), chloroform is here preferred. In the Dental department of this hospital, nitrous oxide gas has been very freely given, and with great success; but the writer is acquainted with one case in which the inhalation of this gas for tooth-extraction was followed by a very painful, intermittent, and irritable action of the heart, extending over a period of one year and more; and, again, of another in which auditory vertigo and tinnitus followed the use of this gas, and remained for some months without any cause being discovered by aurists to explain the symptom. Bichloride of methylene was used for a short time in our ophthalmic department, but was abandoned in consequence of its acquiring a bad reputation in other hospitals. 2. It has been the invariable rule at the London Hospital to have as little apparatus in the administration of anæsthetics as possible; this rule has been maintained because so many gentlemen have to give these agents that it was thought more desirable they should not have each to overcome the difficulties of the various forms of inhalers, &c., but should rely on their own judgment and knowledge, and watch for symptoms of danger unfettered. Ether is administered in cones, made with new stiff towels, with sponges in them. Chloroform is always given with a simple Skinner's inhaler; nitrous oxide gas is given with the usual apparatus; and when bichloride of methylene was given, it was measured from a drop-bottle on lint. I may mention that it has never been the custom at this hospital to measure the amount of chloroform used. I need hardly add that ether is not measured in quantity before administration; several leathern inhalers have been tried with the ether, but the towel, in form of a cone, seems still most popular. 3. A great revolution in the administration of anæsthetics took place in this hospital in 1872; at that time, ether became almost universally substituted for chloroform. Since the introduction of ether, the hospital has not contained any case in which death has resulted from its use nor during its administration. Cases of death have occurred whilst patients have been under the influence of chloroform; but none of these could in any sense be classed under the head of 'death from chloroform;' they were such cases as hernia, in which the patients were moribound when put on the table, and died during the operation: one was a case of an aneurism bursting whilst the patient was under the influence of chloroform for compression treatment. It would be quite useless to deny that ether was adopted in this hospital, and readily so, in consequence of several deaths having taken place during the preceding few years from chloroform administration. I myself, as a student, had the good or bad fortune to see three deaths from chloroform; two of them, however, were from the introduction of vomitted matters into the trachea and bronchi. This raises the important question as to whether it is justifiable to give any anæsthetic when a person is in the last stage of an abdominal obstruction or hernia with fæcal vomiting, &c. Having witnessed several deaths from suffocation by such vomited matters, I should myself be very loath to administer any anæsthetic to patients in this last stage of abdominal collapse. On *à priori* grounds, ether is a more suitable agent in such cases; and I personally have never seen death from this cause with ether administration. It has always appeared to me that, in hospitals, sufficient importance is not paid to the danger of anæsthetics; fully recognising and believing that there is never any carelessness in the administration of them, I still hold that often the operation is performed without the precautions which experience should guide us to use. An unseemly haste is a common fault; every one seems to want the patient to be under the influence in a minute or two; the operator looks at the chloroformist as much as to say, 'When are you going to get the patient under?' I think, too often, no examination of viscera by any competent physician is made. Chloroform has been given, and a patient operated on who had acute pericarditis (as was proved post mortem); and it teaches its own lesson. Again, how often has chloroform been given without good light in the patient's face, and with an inefficient assistant, when the delay of only a few minutes could have procured good help and sufficient light, &c.? Moreover, when possible, galvanic batteries should be at hand, injections of brandy ready, &c. In the case of chloroform, I should attach great importance to the fasting of the patient for four or five hours previously, and the administration of a small quantity of brandy about half an hour before the operation; for want of the former precaution, several people have suffocated under chloroform. Thus it appears to me that, if we thoroughly examine our patient's 'clinical pathology' (as Dr. Hughlings Jackson calls it), if we employ the anæsthetic we consider safest (which in ninety-nine times out of a hundred is ether); if we commence to place our patient under its influence quietly, cautiously, and surrounded by skilled assistants, and such instruments as galvanism at hand, we shall do all that at present lies in our power; and I very firmly believe that it is only by insisting strongly on the maintenance of these rules, rather than by adding fresh ones to them, that we shall bring the mortality from anæsthetics to its minimum."—*Brit. Med. Jour.*

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Annual General Meeting, Monday, January 18th, 1876.

Alfred Coleman, Esq., Vice-President, in the Chair.

The ballot was opened for the election of the officers and council for the ensuing year; and at the close the following gentlemen were elected:

President.—Charles Vasey, Esq.

Vice-Presidents.—Resident: Samuel Cartwright, Esq., John W. Elliott, Esq., Edwin Saunders, Esq. Non-Resident: Z. R. M. English, Esq. (Birmingham), G. W. Buchanan, Esq. (Glasgow), Daniel Corbett, Esq. (Dublin).

Treasurer.—James Parkinson, Esq.

Librarian.—Thomas A. Rogers, Esq.

Curator.—C. S. Tomes, Esq.

Hononary Secretaries.—Henry E. Sewill, Esq. (Council), J. Smith Turner, Esq. (Society), J. Oakley Coles, Esq. (for Foreign Correspondence).

Councillors.—Resident: G. A. Ibbetson, Esq., Henry Moon, Esq., W. G. Ranger, Esq., Thomas Edgelow, Esq., Henry J. Barrett, Esq., Alfred Coleman, Esq., Charles West, Esq., E. B. Randell, Esq., G. Bridgman, Esq. Non-Resident: G. W. Smith, Esq. (Manchester), Frank Petty, Esq. (Reading); J. E. Rose, Esq. (Liverpool), C. H. Bromley, Esq. (Southampton), S. Amos Kirby, Esq. (Bedford), J. Dennant, Esq. (Brighton).

Mr. Parkinson brought up the Treasurer's report.

The Chairman said the Librarian, who was unable to be present, reported some increase in the number of books borrowed, showing that the library was, on the whole, more appreciated, but that the Society had expended a comparatively small amount on that important department, inasmuch as the museum had entailed some rather larger expenditure than usual. The Curator of the museum, in his report, alluded to the numerous contributions which had been from time to time recorded, and also to certain valuable specimens purchased by the Society.

Mr. Moon related the particulars of the mechanical treatment of a case of loss of the hard palate.

Mr. Vasey said he had much pleasure in substantiating all that Mr. Moon had said with regard to this case. He had never seen a case of such extensive loss of material so thoroughly restored. It commanded his admiration. The surgeon could restore to the lame the power of walking, the aural surgeon might confer the benefit of hearing, and the ophthalmic surgeon the benefit of sight, and on this occasion it was literally the Dentist restoring voice to the dumb. Without that artificial piece the patient had no power whatever of articulating or making himself understood, and the placing of that plate made, as it were, a new being of him.

Mr. Oakley Coles said the model of the pad was made in the ordinary way of wax and gutta percha. The moulds were made of zinc, as that gave the hardest surface, the most perfect polish, and the sharpest joints for articulation between the two halves. The pad was vulcanized six hours, and the one in wear was certainly very soft and velvety in the surface. The chief novelty in the treatment was the fact that the pad was made entirely distinct from the gold plate, and in this way took the place of a water-bed, preventing any possible friction.

Mr. Sewill asked why in this case Stent's composition was used instead of plaster of Paris in taking the models.

Mr. Coles said it was used because the pressure necessary to be exerted in taking the model pressed forward the lip, and so gave something approximating to the natural contour of that feature. Plaster would simply have gone up into the place and would have given a perfect impression of the mouth with the lip in its depressed condition.

Mr. Fox brought forward a new articulating frame, which, he said, the inventor, Mr. Davidson, who was present, would explain in detail. Although it appeared complicated at first sight, practically it was found to be very simple and ingenious.

Mr. Davidson explained the construction of the instrument,* for which he claimed various practical advantages.

The Chairman said it was no doubt a very ingenious instrument; it certainly was an immense saving of time to have an accurate bite and an infallible method of obtaining it.

Mr. Fletcher read a paper on the tube-packing test.

The Chairman said the paper to which they had listened was very instructive and opened up many new points, one being the fact of the porosity of the compound of mercury and copper which, when properly worked, was, as regards durability, one of their best amalgams. The question arose how far a small amount of porosity interfered with the durability of a filling; and, again, whether the tests which were brought forward were tests of the permanence and durability of the fillings themselves.

Mr. Sewill said Mr. Fletcher had omitted to state whether he used dichroic or ordinary ink. If they had an ink with really solid particles in suspension it was extremely difficult to make it pass through a fissure unless the fissure was wide, and an ink test of that kind was valueless.

Mr. Turner said he believed it was Mr. Fletcher's opinion that water with colouring matter floating in it, not in solution was a sufficient test and fair representation of the saliva. He did not pretend to argue with Mr. Fletcher on matters chemical, but it seemed to him that in using this test on a piece of bone or tooth the colouring matter if only held in suspension might be filtered, and still the fluid find its way in between the walls of the cavity and the amalgam. The more complex ink was the one which would test any mercury more effectually. In the saliva there was not only floating colouring matter, but also an acidity which was the enemy not only of amalgam but of the tooth in which it was placed. Sullivan's stopping was a most useful article, and cases were continually coming under their notice where it had lasted for twenty, thirty, or forty years. Why it should be so serviceable and still of this porous character he was at a loss to conceive.

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* A full account of this apparatus, with engravings, appeared in the 'British Journal of Dental Science' for January last.

Mr. Coleman said it was now his duty to lay before them some account of the work accomplished by the Society during the past year. The most important of its objects, and the one for which it was specially founded, was the monthly gatherings for the communication of new facts and the mutual interchange of ideas. The number of papers read during the year was ten—a number large in proportion to the number of their meetings—and had been chiefly of a practical character. The first was by Dr. Rottenstein, of Paris, on the subject of "Dentifrices;" followed by a paper from Dr. Woodman, "On the Occasional Occurrence of Symptoms of Poisoning probably dependent upon the Colouring Matter of Pink and Red Vulcanite." Such cases were extremely rare, and probably only when very inferior rubber compounds were employed. A committee was appointed to investigate and report upon any cases that might be brought under their notice, but no such case had yet been met with. Messrs. Ewbank and Charles Tomes contributed a record of some very interesting experiments made upon water-tight fillings with substances usually employed for filling teeth. Papers followed descriptive of Hall's suction disc, and of the practice of Dental surgery in Egypt; the latter being the joint production of Mr. Waller and himself. Mr. Makins, in a very able paper, had dealt with the mercurial and other alloys, and the nature and behaviour of metallic bodies; and Mr. Hutchinson succeeded in evoking considerable discussion by his paper on the "Nerve-pulp in Life and Death." The subject was subsequently followed up by Mr. A. W. F. Barrett and himself at the next meeting; and the last paper was the one to which they had that evening listened. The casual communications during the year had been especially interesting, and dealt with a variety of subjects, whilst a large number of valuable instruments and appliances had been brought before their notice. In this department special thanks were due to Mr. Moon, Mr. Fletcher, and Mr. Kirby, of Bedford, for their valuable contributions. The report of the Treasurer showed that their finances were in a flourishing condition, and the same must be said of the library and museum. The increase in the number of members was satisfactory, while from the number of names nominated that evening they might augur that the new year had in that respect set in well. If it was sad to have to record the names of those who had passed from them, it was gratifying to think that their memory still survived, and that though their place might be vacant and the face might be missed amongst them, yet the deeds of good men survived their lives. He could affirm that no member of their useful calling passed away from this sphere of his usefulness, if he had fully discharged his trust, without leaving beyond his own circle grateful recollections in the hearts of many. Amongst those whose names he had to recall to them as having passed away from them, the name of Mr. Sercombe, who so ably filled the office of President in the last year, stood pre-eminent. Mr. Thomas Palmer, of Cheltenham, and Mr. E. P. Bromley, of Southampton, had also passed away during the year. He considered that the greatest event of the year in connection with their Society was the second presidency of Mr. Tomes, who undertook the position at a great sacrifice to himself. It was thought that his presence in the chair would be the means of drawing together some of the older members of the Society, and this expectation had been realized. Mr. Tomes connected them with everything good that had taken place in their profession during the last twenty-five or thirty years, and it was much to be regretted that his ill health led to his enforced absence on the present and other occasions. He would say no more on this subject, but would leave it to be dealt with by others.

Mr. FLETCHER then proposed a vote of thanks to the retiring president, speaking in very warm and heartfelt terms of the kindness of Mr. Tomes and his devotion to their cause.

Mr. RYMER seconded the resolution. He said, Mr. Tomes's presidency for the second time had shed a lustre upon the Society, and he hoped he might be spared in a green old age to preside over them for a third time. He referred to the part taken by Mr. Tomes in the amalgamation of the two Dental societies, and said that, although at the time he thought Mr. Tomes somewhat illiberal in his views, subsequent events had clearly shown that so far from being illiberal the very reverse was the case, and that Mr. Tomes was as generous in his heart as he was wise in his head. He regretted his absence on that occasion, and hoped that he might speedily be restored to health and strength.

The resolution was carried by acclamation.

Mr. Mummery moved a vote of thanks to the Officers and Council for the efficient manner in which they had performed their duties.

Mr. Parkinson having responded,

The Chairman conveyed the thanks of the Society to the contributors of casual communications and the author of the paper read that evening, and the meeting adjourned.

The next meeting of the Society will be held at the Rooms, 40, Leicester Square, on Monday, February 7th, 1876, when the following casual communications will be read :

"On an Easy Method for Registering Cases." By A. Coleman, Esq., F.R.C.S., &c.

"On a New Model Register." By James Stocken., Esq.

George Henry, Esq., of Hastings, will also read a paper on "The Conservative Treatment of the Dental Pulp *versus* Devitalisation."

DENTAL STUDENTS' SOCIETY.

Annual General Meeting, held January 17th, 1876.

David Hepburn, Esq., L.D.S., President, in the chair.

The minutes of the previous meeting having been read and confirmed, Messrs. Parkinson and Trueman were balloted for and duly elected members of the Society, and Messrs. Baker and Rowney were proposed as members.

The officers and members of the Council of the Society were then chosen for the ensuing year.

Mr. Ackery brought forward a model of an interesting case of irregular dentition, and said :

At our October meeting the question was put—"Which is the more correct word to use—rizodontrophy or rizodontresis?" And a paper was read at our next meeting by Mr. De Negri, in which he appeared to maintain that neither of the words was correct, affirming that rizodontresis should be spelt rizodontrysis, because it was derived from the word *τϱυω τϱυσω*, which, he said, meant I bore a hole; and that the other termination, trophy, *must* be derived from *τϱεφω*, which means I nourish, and, as he said, could have no connection with the operation to which the word was applied. When I came to look out *τρυω τρυσω*, I found that it signified I rub, rub away, rub off, wear out, harass, distress, afflict, vex. Not being satisfied with this I looked out *τρησις*, which I found to mean a boring or piercing through. With regard to the termination of the other word, viz. trophy, I followed our President's suggestion, that probably it was derived from the same word as trephine, which I found was *τρυπαω*, but I could not account for the "o" until reading the word spelt rizodontryphy in the 'Transactions' of the Odontological Society in 1865. This seems to me to make the matter much clearer; which is the better word I cannot say, but must beg to differ from Mr. De Negri when he says that both words are incorrect, and I hope I have made the reasons for believing them both to be correct clear to all.

A large collection of abnormally developed teeth were then exhibited by Mr. Bell, some of which were extremely interesting as pathological specimens.

The gift of some microscopic specimens to the Society by Mr. T. A. Rogers was announced, and a letter from him on the subject was read.

Votes of thanks were then warmly accorded to Mr. T. A. Rogers for his gift, to the retiring members of the Council, and also to Mr. Charles James Fox, the Editor of the 'British Journal of Dental Science,' for presenting reprints of the reports of the Society to each member thereof every month.

The SECRETARY then read his annual report, after which the president called upon Mr. A. UNDERWOOD for his paper on "Anæsthetics."

MR. PRESIDENT AND GENTLEMEN,—I should not feel that I had properly discharged the pleasant duty you have called upon me to perform to-night did I enter upon it without first thanking you for the honour which you have conferred upon me, wholly unexpected and undeserved though it was. Still I feel none the less gratitude and all the more determination to acquit myself to the best of my powers to your satisfaction. I am a very junior member of your society, and it is not very long that I have had the pleasure of mixing with you in the mutual pursuance of our professional studies; but whatever may have been the motive actuating your choice it is very gratifying to me, and however far I may fall short of justifying it, as I fear, unaided by experience, I undoubtedly shall, I must trust to your leniency and my own juniority to plead my cause.

When I made my original choice of a subject for this paper, I fixed upon anæsthetics partly because its important bearing upon our special department of this science of surgery must be evident to all; partly because I felt that want of experience would debar me from speaking upon any purely Dental subject to hearers so much better informed than myself; and partly because it is a branch of science that is yet in its cradle, and the more it is investigated and talked about the better; but anæsthesia has another claim upon our attention as Dental students, for we must reflect with no little just pride upon the fact that this, one of the greatest, perhaps the greatest scientific discovery of modern times, certainly the greatest boon ever conferred on suffering humanity owes its existence to one of our speciality. It is to an American Dentist that the world owes the discovery of this wonderful medium, by which the most agonising and serious operations may be quietly and safely performed while the patient is in a state of tranquil painless sleep, and there are few achievements of science which the world at large, the scientific minority, and the unscientific majority appreciate more fully, or the practical value of which they have more frequently before their notice. Whether the mortality in operations since the introduction of anæsthetics has increased or decreased is still a matter of question, but in regarding this point it is well to bear in mind that the nature and number of the operations themselves have been greatly altered by their use. Surgeons attempt many operations which, in the old days, the mere pain or shock would have been sufficient to deter the boldest from undertaking, and therefore as we have more operations, and those, many of them, of a much more serious character, we may fairly expect, at least, an equal mortality.

It is as well, perhaps, to pass over the history of anæsthetics, interesting though it is, as quickly as possible. There is no doubt that, ever since operative surgery has been had recourse to, which is almost from time immemorial, it has been an object of solicitude to the surgeon to alleviate, as far as lay in his power, the suffering he felt it his duty to inflict. Many and strange have been the methods employed from age to age with this aim and end; but until quite lately these narcotics were attended with such fearful risk, were so uncertain in their effects, and so little understood in their administration, that no reliance could be placed upon them, and surgeons or patients alike viewed them with more dread than the pain they were intended to avert. About the first attempt to induce anæsthesia by the use of narcotics was made by Theodoric in the thirteenth century. He recommended that spongia somnifera, by which he meant a sponge impregnated with spirituous extracts of various narcotic substances, should be held to the nostrils of the patient until sleep was induced; the operation was then to be performed, and the patient roused by the use of vinegar and fenugreek. This method of anæsthetics bore very little fruit of success, and it was not until the commencement of this century that any serious attempts were made in this direction. The accidental discovery of the extraordinary effects produced upon the nervous system by the inhalation of nitrous oxide gas led Sir Humphry Davey and his friends to entertain hopes that this gas might prove effectual as a means of relieving pain during surgical operations. Experiments were accordingly made with the nitrous oxide; but they did not prove altogether satisfactory, and the idea was abandoned. I will not do more than allude to such methods as the compression of the nerves of the limb as recommended by Moore, the employment of excessive venesection, a course adopted by Wardrop, or the production of insensibility by mesmerism, a practice always much in vogue among the native doctors in India. These are condemned by an eminent surgeon of our day as being either inefficient, dangerous, or chimerical, and frequently all three.

The second serious attempt to confer the boon of insensibility on surgical patients was made in the year 1844, and we certainly must allow that America has the right to claim the honour of having established the practice of anæsthesia in surgery. It was in that year that Horace Wells, one of our own body, though not of our own nation, inhaled the nitrous oxide gas with a view of rendering himself insensible during the extraction of a tooth, and finding the experiment succeed, he repeated it on several of his patients. However, some fault must have existed in his mode of administration, for repeated failure induced him to give up the attempt. In 1846 Dr. Morton, also a dentist and a pupil of Wells', used the vapour of ether instead of the nitrous oxide, and his efforts being crowned with complete success, he applied to the authorities of the Massachusetts General Hospital, at Boston, for permission to administer it to a man from whom Dr. Warren was about to remove a tumour in the neck; the result was most successful, and from that time the use of anæsthetics has been established in surgical practice throughout the civilised world.

For more than a year sulphuric ether was the only agent used for inducing anæsthesia; but in 1848 Dr. Simpson, of Edinburgh, discovered the anæsthetic properties of chloroform, which in this country for all long or serious operations has become the established medium; but it is quite of late years—within the last few, in fact—that the nitrous oxide has been revived and so largely adopted by our profession.

There are three main methods of producing insensibility to pain during surgical operations, that is to say, three several media may be employed for that purpose—chloroform, ether, nitrous oxide gas. The first of these is seldom had recourse to nowadays in Dental operations, nitrous oxide gas and ether being far more suited to the rapid nature of our operations, especially the former, which is, perhaps, par excellence our own anæsthetic, as we introduced its use, and though pre-eminently adapted to our purposes, it can never be of any great use for long operations.

As chloroform until lately was universally adopted by the whole profession, including our own branch, I will take it as a convenient type of a narcotic and describe its action on the patient. Like most narcotics it usually tends to cause a short period of excitement before the stupor is induced, which may vary according to the temperament and mental condition of the patient, who frequently talks and gesticulates, especially when, as I have often seen, he fancies that the surgeon thinks he is insensible, and will operate while he can feel but cannot move. As this stage passes off the chloroform proceeds to cause suspension of the functions of the nervous centres, but does not affect them simultaneously but in a certain order, commencing with the cerebral hemispheres, the seat of the highest faculties, volition, and thought. The next attack is upon the cerebellum; the effects of this soon make themselves apparent by loss of co-ordination; the eyes roll and do not follow each other's movements more correctly than in drunkenness; in fact, as excess of alcohol powerfully affects the cerebellum, so we have all the phenomena of intoxication in this stage of anæsthesia. Then the ganglia at the base, and with them voluntary motion; the medulla, and with it articulation; and lastly, the spinal cord, with its reflex functions, are subdued, and the whole muscular system lies relaxed and passive; yet to this general subduing of the functions of the nervous system there is one remarkable exception to those of its powers or faculties which are essential to life; these are of course retained intact, and therefore the sympathetic ganglia in the base of the heart which alone preside over its contractions and that portion of the medulla called the respiratory centre are the last to be affected by chloroform, and of course the administrator stops far short of this. But there are other advantages derived from this nervous inactivity besides muscular prostration; it is quite an established fact that the cessation of the contractions of the heart in the shock of injury depends upon the influence of the brain and cord upon the cardiac ganglia through the medium of the pneumogastric and sympathetic nerves, and chloroform rendering this effect impossible, diminishes the danger of shock referred to the heart almost to zero, and it is hardly necessary to allude to the salutary effects of the mental tranquillity enjoyed by the patient previous to the operation. So far the modus operandi is much the same with all narcotics. I will now touch upon the peculiarities as regards relative danger and duration, and finally will say something of the manner of administration.

There are certain diseased conditions of the system which render the administration of chloroform dangerous, but as a rough rule, whenever the constitutional disease has not advanced to such a degree as to contra-indicate an operation, chloroform may be given. In early stages of phthisis it may usually be safely inhaled, unless through bronchial irritation the vapour should produce a troublesome cough. When the heart is diseased it is wise to withhold the anæsthetic, but most especially so when its muscular substance has undergone fatty degeneration, as nothing is more likely in such a case than sudden arrest of the heart's action; and this I may say, in passing, is the most frequent cause of death while under an anæsthetic, and no administrator can be too careful in his questions on this point; in valvular disease of the heart it may be more safely administered. In persons who are epileptic, and in those who suffer from congestion of the brain, it must be given with great caution, as the stage of cerebral excitement is specially dangerous in such cases. In hysterical subjects chloroform is said to produce a tendency to laryngeal spasm. But by far the most dangerous condition in which to administer chloroform is that of uræmia, when in consequence of kidney disease the blood is loaded with urea; in such cases the result is commonly epileptiform convulsions, livid pallor, stertor, coma, and death.

I will now pass on to the secondary effects of chloroform which may show themselves in connection with the, 1, head, 2, lungs, and, 3, stomach; and they depend partly on the mode of administration, and partly on the age, habit, temperament, and digestion. Old people, people addicted to excessive drinking, and those of a sanguine or bilious temperament, are the most likely to suffer. The condition of the digestion is important; four or five hours should have elapsed since a meal, as if chloroform be given on a full stomach bad results are certain to follow. Head complications chiefly follow when the patient is aged; headache and stupor, and occasionally paralytic and apoplectic symptoms, sometimes appear some days after the administration. Hysterical young women and girls often alarm the inexperienced by their behaviour during recovery from chloroform, and this is generally protracted by the maudlin sympathy of the bystanders for the patient. Sternness, even harshness and cold water, will remove all cause for uneasiness. In the lungs the pulmonary vessels are always slightly congested during the inhalation, but in a natural recovery unload themselves, and no inconvenience results. But sometimes this relief does not take place, and a process of slow asphyxia or a low form of pneumonia may set in and prove fatal in from one to six days.

Nausea and vomiting arising from excessive irritability of the stomach is often a very distressing after-effect, and is sometimes extremely exhausting and may even prove fatal.

There are three sources of death from chloroform—the brain, the lungs, and the heart, and the forms of death resulting therefrom are named respectively coma, asphyxia, and syncope.

When death occurs by coma the first sign is stertorous breathing; then livid pallor and convulsions; the heart continues beating to the last, as the primary cause of death seems to be the circulation of venous blood through the medulla and nervous centres of the brain. Coma supervenes generally when the patient is epileptic or anæmic.

Death by asphyxia may depend on spasmodic closure of the glottis, the epiglottis remaining erect and the arytæno-epiglottidean folds being carried forward till they are in contact with its base, and the upper opening actually closed by being forced against the root of the tongue. On pulling the tongue out reflex action (which, where it refers to the respiratory functions, is intact during anæsthesia) draws back the arytenoid cartilages, and the larynx is perfectly free again.

This closure of the glottis when not attended by stertor is very deceptive, as the heaving of the chest continues long after air has ceased to enter, and the only way of ascertaining the cessation of respiration is by putting the hand over the patient's mouth to feel whether the breath is passing in and out or not, and by observing the increasing lividity. Death from asphyxia may also occur in hospitals where the method of administration is less perfect than it is here, by the omission on the part of the administrator to allow sufficient atmospheric air to pass with the chloroform so as to maintain the function of respiration.

In death from syncope the patient breathes a few times, suddenly becomes pale and faint; the pulse beats in a flickering manner a few times and then ceases, though respiration may continue. This may be anticipated in cases of mental emotion or depression or physical debility, but most of all in cases of fatty heart. It is best to give a stimulant, such as brandy or ammonia, to guard against this result in cases where it is feared.

I have now to speak of ether. In most of its characteristics it resembles chloroform, and much that I have said of the latter will apply equally to ether; there exists, however, certain important differences which I will proceed to point out. First, the effect of ether is much less vigorous, active, and powerful than that of chloroform. The strong form of ether resembles much the dilute form of chloroform; but it has also intrinsic points of difference; most important of all, ether has either no effect at all upon the heart, or, if any, that of increasing its action; chloroform, while it raises the heart's action at first, speedily depresses it, and frequently kills by inducing syncope; hence death produced by ether is almost invariably due to failure of the respiratory movement, and this may be explained by the recent paper by Dr. Harley, before the Royal Society, who states that while chloroform diminishes the power of the constituents of the blood to unite with oxygen, and gives off CO_2, sulphuric ether has neither effect. Secondly, ether has a much greater power of destroying red blood-corpuscles, and prevents the blood from reassuming an arterial tint when agitated with air, which effect is not produced by chloroform. Another characteristic of ether is its extreme pungency, which is so great that many administrators prefer to commence with chloroform, and then give ether; the after-effects of ether are exceedingly distressing, sickness and vomiting being an almost invariable result, and I have frequently noticed great foaming at the mouth, and the recovery is often prolonged to hours, and then is accompanied with nausea and distaste for food. Thus, though in ether we have an anæsthetic of a less violent action than chloroform, and have less to fear in its effect on the heart, yet its slow and uncertain action has led to its practical disuse in this country. The committee appointed by the Medical and Chirurgical Society in 1864 to investigate the subject of anæsthetics recommended a mixture of ether three parts, chloroform two parts, and alcohol one part, the latter constituent inducing a more equable blending of the first two.

With regard to the nitrous oxide gas, I have encountered some little difficulty in acquiring my data; indeed, all that I can tell you is that its action is excessively rapid, sixty to eighty seconds sufficing to produce complete anæsthesia, and about sixty more seconds completely getting rid of the effects. A French medical man of the name of Maurin narrates a case in which the anæsthesia was prolonged an hour and a half. The gas is surrounded by far less danger than any other anæsthetic. I shall recur to the nitrous oxide gas in another connection.

With regard to the administration of anæsthetics I shall confine my attention to that of the nitrous oxide gas, and not trespass on your patience by disquisitions on the hundred and one ways in which the other anæsthetics have been from time to time administered. There can be no doubt that Mr. Clover's apparatus for chloroform is acknowledged to be incomparably superior to any other method; if this be unattainable, the principle which he carries out so perfectly may be roughly imitated by holding a piece of lint dipped in chloroform about four inches from the mouth and nose of the patient, and gradually approximating it. In the case of nitrous oxide, I will briefly describe his apparatus in his own words, though most of you are quite familar with it already. It consists of a face-piece made of sheet lead, so as to be easily moulded to the face, and edged with india-rubber tubing so that the nose and mouth may be completely covered with an air-tight cap, and obviating the necessity of pinching the nose; two valves prevent the gas from being breathed a second time. When a patient breathes in too rapid and forcible a manner, to prevent any air from being admitted by the falling of the cheek, a supplemental bag holding about 200 cubic inches is connected by a stop-cock to the face-piece. The anæsthetic may be prolonged through a nose-cap alone. It is unwise to give the gas after a meal or with tight dresses; whilst fitting the mouth-piece the patient should breathe air only by means of a stop-cock, and the gas should not be turned on until the patient breathes steadily. As long as the breathing continues calmly the supplemental bag should be empty, but when panting commences the stop-cock should be opened; by these means the gas is so readily yielded during inspiration that no air is sucked in under the face-piece. When the breathing becomes so calm as scarcely to raise the expiratory valve, the supplemental bag should be compressed at every fifth or sixth inspiration, and allowed to refill with fresh gas. Lividity after twenty or thirty seconds is no sign of anæsthesia: in about fifty seconds the expression alters, the eye becomes unsteady, the hands slightly convulsed. Inhalation may be continued ten or fifteen seconds longer, unless respiration becomes very slow or stops, or the pulse becomes very quick and unsteady. Sudden dilatation of the pupil should be a sign for instant removal of the gas. If general muscular rigidity does not come on during inhalation, it often does when the operation begins, and then the breathing may cease for ten to fifteen seconds without cause for alarm if the pulse be full. The next gasp of pure air produces immediate respiration accompanied by a general flush over the face; but the inhalation should be at once discontinued if the pulse threatens to stop; slight hysteria sometimes supervenes, but never lasts so long as after chloroform. Mr. Clover stated, in the year 1868, that he had given the gas in 387 cases, in all of which the patients had been able to walk away after the operation; only three cases of sickness had occurred. Of these 387, two were subject to epilepsy. These statistics, now of course trebled, speak for themselves.

I have now spoken of the most important anæsthetics, and I am compelled to pass over the innumerable less famous agents unnoticed. They are most of them open to more or less serious objections, and can none of them be considered as so especially adapted to our own operations as the gas. But one very important point remains to be alluded to, namely, the treatment in a case of overdose. In all such emergencies the operator should remember that coolness and promptness are required at his hands: he must keep in mind that he has two objects to attain: 1. The re-establishment of natural respiration; 2. The re-establishment of a natural heart's action and circulation.

The lungs are full of vapour incapable of oxygenating the blood, and the direct results are, as you know, stasis of the blood passing through the pulmonary vessels, the little that does pass being venous, consequent engorgement, distension, and paralysis of the right side of the heart, and left side empty, except a driblet of black blood, and finally black blood circulating through the medulla. If ether be the agent, direct your attention chiefly to the respiration; if chloroform, to circulation as well; but in all cases observe the following rules:

1. Discontinue the administration of the anæsthetic.
2. Seize the tongue with fingers, hook, or forceps, and draw it as far out of the mouth as you can.
3. Open doors and windows, and allow no one to crowd round the patient.
4. Remove all constrictions from the throat and chest of the patient and freely expose them.
5. Perform artificial respiration at once by alternate compression and relaxation of the chest-wall, and raising the arms and then depressing them.
6. Apply electricity to heart or diaphragm.
7. Flipping the face and left side of thorax with a wet towel, dashing cold water in the face, rubbing the extremities, are all methods that immediately suggest themselves to our common sense.

Let me, before closing this paper, though I am afraid I have already detained you too long, say a few words upon a topic of the intensest interest to all of us in this connection, namely, to what degree can insensibility to pain be produced. Does the patient feel pain and forget it? or does he feel none at all? This, gentlemen, is a point difficult to investigate or decide upon; all of us have our own opinion upon it, I have no doubt, and all we can do is to adduce physiological evidence. Much must naturally depend on the greater or less care of the administrator; the terrible screams, exactly corresponding to the stroke of the knife, the violent struggles, and expression of any wish that we have most of us witnessed on the operating table in our general hospitals, seems scarcely compatible with the perfect unconsciousness professed by the patient after recovery; but this we may believe may be much modified by a better system of administration, and I am sure that general hospitals might learn a useful lesson in this particular if they were to come and see the scientific manner in which the gas is given here, so immeasurably superior as I believe it to be. As we set the example to the medical world of giving an anæsthetic at all, so we have kept up the tradition by giving it still in the greatest perfection; but allowing, for the sake of argument, that the anæsthetic is administered in the most perfect manner we have at our command, I am myself of the opinion that in one sense of the word the patient still feels pain. I have before alluded to the order in which the faculties become suspended, and you may remember that the first region invaded was the cerebral hemispheres, and the powers of reason, thought, memory, and volition are temporarily lost; then follow co-ordination voluntary movement, till at last the patient is reduced much to the mental condition of an acephalous monster or a child born without a brain and possessing only a medulla and pons, and able only to breathe, suck, cry, and live. Now, were the invalidation to pass straight down the next effect would be death from loss of these vital functions; it does not, however, do this, but skipping the medulla and pons, proceeds to attack the spinal cord and deprive the voluntary muscles of the power of reflex action. Now there are, I need scarcely say, certain grey nuclei in the substance of the pons Varolii between the longitudinal fibres passing from the cord to the brain and the transverse fibres forming the middle crura of the cerebellum, and it is these grey centres which, exempted together with the medulla from the anæsthetic effect, are responsible for a low form of sensation in no respect analogous to the acute perception of the active brain, but still a sensation, or rather, a transient consciousness which governs the outward manifestations, but produces no impression on the memory, and therefore is immediately forgotten. The dreams so often alluded to, which would seem to imply a sort of activity on the part of the brain, often, probably, occupy an infinitesimal space of time during recovery; but as these ideas are unsupported by any authority whatsoever, I will not dwell any longer upon them. One thing, at any rate, we may be sure of—that by the means of anæsthetics patients are spared what is infinitely worse than the suffering itself, and much more vitally affects the success of the operation: I mean the weary anticipation and terror beforehand, or the vivid recollection afterwards. In passing, let me mention a method I accidentally heard of the other day, by which the operations in a hospital theatre are diverted of much that is frightful and terrifying to the patients. I allude to the eager crowd of faces of students, the panoply of crimson cloth and gowns so suggestive of bloodshed, the awful array of knives, saws, and red-hot irons, and the president spirit perhaps bespatten with blood; all these sources of dismay and terror might be removed by the simple expedient now, I think, in vogue at Leeds, of getting the patient under chloroform in an adjoining room, and then bringing him or her into the theatre insensible.

Lastly, gentlemen, I would deprecate the practice of the operator himself administering the anæsthetic—a most dangerous and reckless practice. There are a class of people about who, either from an unsound mind or deliberate viciousness of nature, delight to bring down the arm of the law upon the head of any unwary surgeon who may render himself open to their attacks. You can never be too much on your guard against a charge of malpraxis. An old and experienced surgeon of my acquaintance I know has made a practice from his entry into professional life never to operate with an anæsthetic except in the presence of the chloroformist and a female servant, and this latter precaution when the patient is a female is of no slight importance. It is not a pleasant subject to enlarge upon, but we all are aware that charges of an excessively unpleasant and derogatory character have been brought against men of the most irreproachable honour and been incapable of total disproof owing to the omission of this simple precaution. In concluding, while I thank you most heartily for your attention, I am afraid I have almost worn out your patience; so with many apologies for the insufficiency and slightness with which I have been compelled to treat this very broad subject, I shall sit down, with the hope that at some future time I shall hear from some gentleman, more qualified by experience for the task, an elaboration of this subject.

An animated and prolonged discussion ensued, in which the following gentlemen took part:—Messrs. Bennett, Willis, Baker, Read, Weiss, Margetson, Bell, Hepburn, Woodruff, Mason, and Rowney.

A very cordial vote of thanks was then given to Mr. A. Underwood for his paper, which could not but be regarded as very excellent and reflecting the greatest credit on the writer. The meeting then adjourned to February 14th.

Miscellanea.

A DENTIST'S BILL.—JONES *v.* ROBERTS.

Bloomsbury County Court, Nov, 12.

(Before G. L. Russell, Esq., Judge.)

[The following report was sent to us for publication at the time but was unfortunately mislaid. As, however, it contains some points of great interest to the profession, we think it well even now to place it on record.—Ed. 'B. J. D. S.']

The plaintiff in this suit is in practice as a Dentist at 57, Great Russell Street, Bloomsbury; the defendant, a purchaser of wardrobes, at 24, Park Row, Chelsea; and the claim was for £15 15s. for a set of artificial teeth. Mr. Wright appeared for the plaintiff, and Mr. Roberts for the defendant.

According to the evidence of plaintiff's foreman and secretary, defendant ordered the teeth in question, and signed the agreement produced, but after they were sent home she refused to pay for them on the ground that they did not fit. She at first objected to the sum charged, and offered £10 10s., and when plaintiff ultimately agreed to accept this she lowered her offer to £6 6s., but this she afterwards refused to pay.

In cross-examination the foreman swore that the agreement in the book produced was written before defendant signed it, and that there was no agreement that the plate was to be of pure gold. He also stated that it was a common practice with Dentists to take a model of the mouth whilst the gums were lacerated and swollen after teeth had been extracted.

Samuel White, plaintiff's secretary, having proved writing to defendant and calling on her in reference to the debt, and that she had promised to pay, Defendant said she was introduced to plaintiff by a Mrs. Humphreys, a friend of hers, for the purpose of having a tooth extracted, but he advised her to have some others taken out, and he extracted seven in all. He then placed some wax in her mouth, and almost before she could be aware of what he was doing, he had taken an impression of the gums. He then advised her to have a set of artificial teeth, but would not tell her what the cost would be, beyond saying "they will not be much." She ultimately offered to pay £6 if the teeth were properly made and fitted her, and it was distinctly understood that the plate was to be pure gold. She was led to a desk by plaintiffs and told to sign her name on a blank form at a spot indicated by him. When she found the teeth would not fit, and were not according to agreement, she returned them. She wrote a letter, offering to pay £10 for the teeth if they were made to fit, but after submitting them to a Dentist, and finding the plate was only "temple metal," she declined to have them at all.

Mr. Wright, in addressing the Court upon the whole case, contended that there was no stipulation that the plate should be of "pure" gold, but only of the substance known as "gold" in the Dental profession. He also commented upon the singularity of the defendant signing a document which she had not read, and which she now declared was not written at the time, more especially as she paid £1 deposit at the time of signing.

His Honour, in reviewing the evidence, said it was a most unusual thing to draw seven teeth at one sitting, and he did not believe it would be possible to take a correct model of the mouth after such an operation, and whilst the gums were swollen and lacerated. He was perfectly satisfied that the plaintiff did not use reasonable skill in the exercise of his profession, and that the teeth never did fit. He was also satisfied that the agreement was for the plate to be of gold, and the charge of fifteen guineas for the set of eleven teeth warranted that supposition. With respect to the order or agreement, which defendant had sworn was not written when she signed it, he should give no opinion, because the plaintiff's reputation was at stake upon it, and he was not present, but he should give judgment for the defendant, with costs.—*Daily Chronicle*, November 15th, 1875.

CONVERSAZIONE.

The new President of the Odontological Society, Mr. Vasey, has issued invitations to the members and others for a Conversazione, on the evening of Friday, February 4th, at his private residence, 5, Cavendish Place.

PLASTIC FILLINGS.

Such a variety of these materials are in the market that it is hard to deal fairly with them, for, in truth, they have most of them great merit; the competition seems really, thanks to Mr. Fletcher's investigations, to have taken a thoroughly healthy tone, and each maker seems to strive to make his productions so far actually good as to come creditably out of the various tests they are now subjected to by those who have followed Mr. Fletcher's footsteps.

Our old friend Guillois, notwithstanding the scientific competition of the gentleman we have just named, seems still to hold his ground, and, indeed, has much improved his composition, which we often use with satisfaction.

As a painless temporary filling for sensitive or doubtful teeth, and for other purposes, we must express our obligations to Fletcher's so-called artificial dentine.

British Journal of Dental Science.

No. 237. LONDON, MARCH, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London Ophthalmic Hospital, and to the Central London Ophthalmic Hospital.

The following articles were first published in Mr. Watson's excellent work on 'Diseases of the Nose and its Accessory Cavities;' but possessing as it does many points of great interest to the Dental practitioner, Mr. Watson has kindly undertaken somewhat to extend them, and to embody in the text many interesting cases which in the original work appeared only in the appendix. These articles will also probably be illustrated by engravings which were not given in the original work, as, for instance, the two subjoined copies from Giraldès' work. Following the order in Mr. Watson's work, we have first the section on—

The Anatomy of the Antrum.

The antrum of Highmore, "Oberkieferhöhle" of the Germans, and "sinus maxillaire" of the French, was described by Isaac Highmore, in 1651, "as conical and somewhat oblong." Some quaint woodcuts in Highmore's work* (reproduced in the 'Transactions of the Odontological Society,' vol. ii, in a paper by Mr. W. A. N. Cattlin, F.R.C.S., and also in Mr. Cristopher Heath's valuable treatise 'On the Jaws') give a very inadequate idea of the actual antrum, its shape, or anatomical relations. It has been described as "a large triangular-shaped cavity, hollowed out in the body of the superior maxillary bone; its apex, directed outwards, is formed by the malar process; its base, by the outer wall of the nose." (Gray's "Anatomy," p. 52.) It is more correctly described by Mr. Luther Holden as "a triangular pyramid" in shape. Its roof is formed by the orbital plate, its floor by the alveolar process, bounded in front by the facial surface, and the canine fossa, and behind by the zygomatic fossa. Its inner wall, in the dry disarticulated bone, has an aperture of variable size, which is partly closed in by the bones articulating with it, viz. the ethmoid above, the inferior turbinated below. and the palate bone behind. The antrum communicates with the middle meatus of the nose through this aperture, which is overlapped in the recent subject by mucous membrane, and presents, towards the meatus, a mere slit or valvular opening almost hidden in the funnel-shaped channel (the infundibulum) into which open the anterior ethmoidal cells (Fig. 1). There is sometimes a second circular hole, about half-an-inch or less behind the normal and more constant aperture. According to M. Giraldès ("Recherches sur les Kystes Muqueuses du Sinus Maxillaire," Paris, 1860), this posterior opening is always the result of pathological change. It is important to note this, as the

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* I. Highmore, "Corporis Humani Diss. Anatomicæ." Hagæ, 1651.

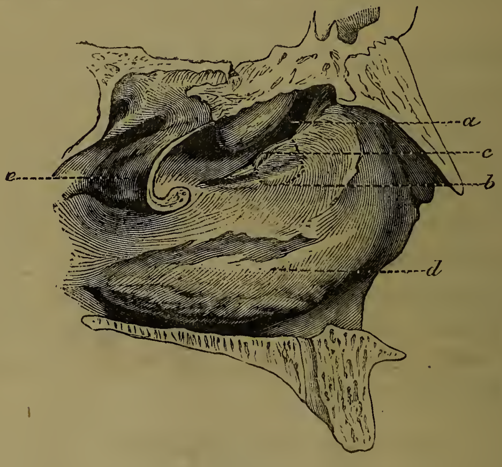

Fig. 1.

External wall of the nasal fossæ.

a. Infundibulum.
b. Dotted line showing the course of the canal between the maxillary sinus and the nasal fossæ.
c. Bony spur of the infundibulum.
d. Inferior turbinated bone.
e. Middle turbinated bone.

operation of passing a sound or catheter into the antrum, through the anterior nares, has been proposed, and it is evidently extremely difficult, and perhaps impossible, to perform this operation unless we either break through the mucous membrane and the outer bony wall of the nares, or accidentally succeed in meeting with the posterior aperture.

The following passage from M. Giraldès is sufficiently striking to be worth quoting *in extenso:*

"After examining a certain number of subjects, we find that besides the normal aperture of the sinus, a second is sometimes met with in the centre of the middle meatus of the nasal fossa, which second aperture is that hitherto described by anatomists, and accepted by pathologists as the normal orifice" (Fig. 2). This will be best understood by reference to the following engraving, copied for this Journal from Giraldès' work.

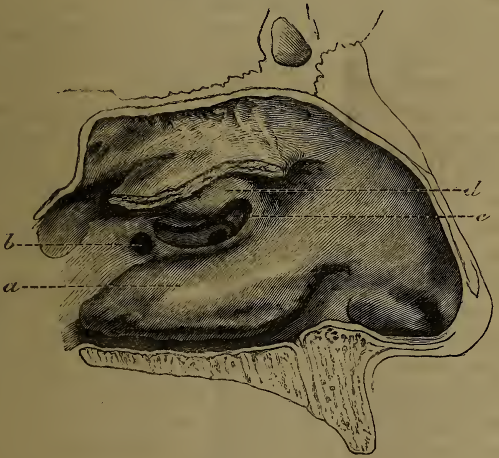

Fig. 2.

External wall of the nasal fossæ.

a. Inferior turbinated bone.
b. Pathological perforation making a communication between the nasal fossæ and the maxillary sinus.
c. Infundibulum much enlarged.

"After examining a great number of subjects, we meet with an orifice in the centre of the middle meatus in some, but it is not constant; in 100 bodies it was only met with eight or ten times; it does not always occur on both sides, and in the same part of the meatus; when it does exist, it has variable positions, and variable dimensions, sometimes it is double or even triple. Considering such variable results, it became necessary to seek for the explanation. After a series of researches, I may say that whenever this abnormal orifice exists it is the product of a pathological process; it constitutes a true perforation, of which I have had the opportunity of following the different stages from the thinning of the mucous membrane of the meatus up to the period of complete perforation.

* * * * *

"It has even entered into the imagination of some surgeons to conceive the possibility of catheterizing the antrum, as a means of remedying the obliteration of its orifice. This operation, founded on false ideas, is impossible, and should be erased from books on surgery."

The cavity of the antrum is variable in size, and by a reference to Mr. Cattlin's treatise above mentioned, we find that it is larger in men than in women, and that it diminishes in size in extreme age; being small also in young children, in whom the walls are comparatively thick. An adult antrum, of average size, will hold two and a half drachms of fluid, while a very large one is capable of containing eight drachms, and a very small one only one drachm. A series of wax casts, taken from the antra of seven or eight individuals of varying ages, in the museum of the Dental Hospital, show very clearly the great variability in size and shape of this cavity in different persons. The interior is, in some few specimens, nearly smooth, but in most there are ridges or thin plates of bone projecting into the cavity from the outer or anterior wall, forming incomplete separations and, dividing it into fossæ, giving it some resemblance to the sphenoidal and ethmoidal cells. Projecting into the floor are several conical processes, corresponding to the roots of the first and second molar teeth, and in some cases the floor is actually perforated by them. The walls are thinner in the canine fossa than in the parts immediately surrounding it, and are again thin on the posterior aspect of the outer wall above the molars. The antrum is developed before any of the other sinuses, its cavity being traceable about the fourth month of fœtal life. The mucous membrane is thin, pale, closely adherent to the periosteum, covered with columnar ciliated epithelium, and like that of the other accessory sinuses, has a resemblance to a serous membrane. It is thicker and more abherent to the internal wall, and is at this part abundantly supplied with mucous follicular glands, closely aggregated near the orifice of communication with the nostril, but more sparsely distributed in other parts.

These glands, seen with the naked eye after maceration and soaking in dilute nitric acid, have the appearance of yellowish opaque dots, of about half the size of a pin's head. The dots are produced by the glandular epithelium being rendered opaque by the acid. Examined by a lens, each gland is seen to consist of a simple or bifurcated tube terminating in a follicular mass, composed of a certain number of culs-de-sac communicating with the principal tube. These follicular glands lie in the cellular tissue which separates the mucous membrane from the periosteum.

The secretion of these glands, in the normal condition, is a transparent glairy mucus, which is only poured out in sufficient quantity to keep the surface moist, but may be increased in quantity, and rendered more opaque and puriform, during any catarrhal or inflammatory attack.

At some parts of its extent the mucous membrane presents rudimentary papillæ, which become more easily recognised when the membrane is hypertrophied.

(To be continued.)

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 66.)

I have hitherto confined myself while speaking of the hereditary transmission of peculiarities of the teeth to tracing out those resemblances either in form or position that have been noticed, and in many cases written upon, by several observant practitioners. I have contented myself by describing only a few well-defined instances rather than weary the reader by detailing a number of illustrations of a less marked character; but I now come to a section of my subject surrounded with conjecture and open to much discussion; it is the

III. *Hereditary transmission of caries.*—The difficulties that prevent our arriving at any very satisfactory conclusions will be readily understood when we come to consider that the parent must wait for years with a well-recorded history of their own case before they can hope to be able to trace a similar state of things in the offspring. If caries can be proved to be hereditary, it should be detected in parent and child at about the same period of life; and how is this to be demonstrated, unless the Dental surgeon keeps a very careful record of every case? It is easy enough to perceive any transmitted peculiarity in arrangement, for the mother may possess a comparatively perfect set of teeth at the age of forty, and have a daughter, aged twenty, in whom that similarity of arrangement may be readily detected. Again, it is possible for the parent to have lost, and to continue to lose, teeth by chronic inflammation of the Dental periosteum, while the child is experiencing an attack of the same malady. "All my family lose their teeth in this manner: they fall out perfectly sound," is a remark we are accustomed frequently to hear, and see illustrated by a succession of cases; but the hereditary transmission of caries, if capable of proof at all, can only be demonstrated after years of patient research, and its consideration should be entered upon with the greatest caution, for that which might be regarded as conclusive may prove to be simply a *coincidence.* I therefore enter upon this portion of my notes with considerable diffidence, trusting that others having a wider field for observation may take up a subject deeply interesting, not only to the Dentist, but also to the physiologist.

Mrs. B— brought her daughter, 16 years of age, to see me. She had a fine, regular set of teeth, in no way crowded or characterised by any deformity whatever. The girl had been suffering severely with toothache; and upon examination I found all the bicuspids of the upper jaw diseased; two—the posterior—so extensively that little could be done to arrest the decay with any hope of success. The anterior bicuspids were at once filled with gold, and those on the posterior side placed under treatment, and, after many visits, the decay thoroughly cut out and filled with silicated gutta percha. An interval of about fourteen weeks intervened, and the young lady was then brought to me again, but I was distressed to find that the two filled with gutta percha had become mere shells, and the remaining two showed signs of disease in other parts of the teeth. I made a very careful examination of the mouth, as I had done on her first visit, but failed to discover any trace of caries in other teeth, and, what is more, the dentine in those decayed was hard and apparently healthy. This lady had just completed her twentieth year when she visited me again, and as all hope of retaining any portions of the four bicuspids in either a healthy or an ornamental condition was abandoned, the stumps were extracted, and after the usual interval for absorption, models were taken and artificial teeth substituted. Again the remaining teeth were examined, and they seemed perfectly healthy, and I may here remark that they continued so until her death, many years after.

Upon every occasion that this lady visited me she was accompanied by her mother, who, to my surprise, did not express the slightest astonishment at the loss her daughter had sustained, but simply remarked that they (the bicuspids) were teeth she had noticed to be frequently missing, and supposed that they were very prone to decay. As I found the subject was anything but an agreeable one, I desisted from making any further remark at the time, and so the case would have ended had it not been for a visit Mrs. B— paid me alone. She was in a state of the greatest agitation, and then acknowledged that she was wearing a plate in the upper jaw with four bicuspids on it. I had previously noticed that she appeared to prevent me getting any but a casual glance at her teeth; and although I had on more than one occasion asked to be allowed to examine her mouth (a practice I have always advocated when attending to a patient's children, either for irregularities or disease), I could not detect that she was wearing any artificial work. This lady then gave me the history of her case. At exactly the same age as her daughter, the upper bicuspids had commenced to decay. They had been attended to by a competent Dental surgeon, but all attempts at successfully filling them had failed; she therefore, at the age of twenty-two, had them removed and artificial teeth substituted. As she showed them very much she requested that natural teeth might be used, so it required something more than a casual glance to detect that they were false. Upon her marriage she did not inform her husband that she was wearing anything of the kind, and therefore was very reluctant to allow her daughter to see them. Now, one having broken she was in a state of great agitation, fearing that, being a natural tooth, a substitute could not readily be furnished, and that she would have to acknowledge the deception she had practised.

There can be no doubt that in appearance there was a very strong family resemblance between the teeth of the daughter and those of the mother, and that none excepting the lost bicuspids had been attacked by caries. Both mother and daughter are now dead, but the facts as related were of too marked a character ever to be forgotten.

Many years ago another case, the history of which is well ascertained, came under my notice.

Miss W—, æt. 21, presented a remarkably fine set of teeth: they were as nearly perfect in shape, arrangement, and organisation as possible. Greatly to this lady's annoyance signs of caries appeared in all the four first permanent molars; and although every care was taken thoroughly to eradicate the decay and fill them, the disease continued to progress until finally she lost them. I had many opportunities of seeing the mother (Mrs. W—), for whom I made a set of teeth, and she mentioned to me the singularity of the case, that the only teeth she herself had lost by caries were the first molars, and that was when about eighteen or twenty years of age; that *all* her children, although possessed of remarkably fine teeth, lost their first permanent molars between the age of twenty-one and twenty-five. I had an opportunity of seeing a son and daughter (although I had nothing to do in attending to their teeth), and found, as the mother had stated, that the four molars in both cases were seriously affected. They appear to have been carefully filled, but in a few years had to be removed, although none of the other teeth showed the smallest sign of decay, and I had the testimony not only of the mother herself, but also of the son and daughter, that other members of the family had lost the same teeth.

When alluding to hereditary variations in the relative position of the maxillæ, I mentioned a family of children in four of whom the upper teeth instead of standing in front of the lower were inside the inferior circle. I should like now to return to those cases, in order that we may examine the teeth themselves.

Mr. W. S—, the father, has lost, as I have before mentioned, nearly all his teeth by inflammation and absorption of the gums, but two first inferior molars are standing. They are both carious.

Mrs. W. S—, the wife, has very bad teeth: the few that remain are more or less decayed.

1. Child, boy, æt. 16, signs of disease in all the four first permanent molars. The other teeth appear to be perfectly healthy.

2. Girl, æt. 15. First superior molars both right and left filled. The same teeth in the lower jaw removed, being carious.

3. Boy, æt. 13. Two of the first molars removed, being decayed; the other two have been filled. The remaining teeth exceedingly good.

4. Boy, æt. 10, first molars all diseased. No decay in any of the other teeth.

5. Girl, æt. 9. Two of the first molars filled: all more or less imperfect.

6. Girl, æt. 7. The four first molars but just erupted. In the deep fissures signs of caries.

It will here be noticed that in every one of these six children we have the loss of the first permanent molar, although the other teeth remain good; and in those numbered 1, 3, and 4 they are exceptionally perfect.

If these cases point to any conclusion at all, they certainly lead us to believe that particular teeth being imperfect in their structural development may be predisposed to disease. That that predisposition is easily traceable in other diseases as transmitted from parent to child, and I fail to see why any exception should be made in diseases of the teeth. That caries may present itself—more particularly in deep fissures—if not before, certainly immediately after, the eruption of certain teeth, while all those in the immediate neighbourhood are perfectly healthy is admitted, I believe, on all hands; and that one tooth, be it molar or bicuspid, incisor or canine, shall in some cases run through a whole family as more weakly than the rest has been frequently pointed out. It was not my intention in compiling these notes to do more than cite cases, but I may be permitted to say that I have failed to discover in my reading and experience anything that contradicts the hereditary transmission of caries.

That the Dental surgeon may be benefited by making an examination of the mouths of every branch of a family none who have devoted much attention to irregularities of the teeth will deny, and that perhaps something may be gained by trying to trace out similar hereditary weaknesses in their structural organisation I think these cases tend to confirm.

(*To be continued.*)

ON THE TREATMENT OF EXPOSED PULPS.

By Alfred Coleman, Esq., F.R.C.S., L.D.S., &c.

I am sorry it has ceased to be a custom in the Odontological Society to give to the members who read papers a certain number of copies of the same, otherwise I should have felt great pleasure in handing to Mr. Lane Clark one of the paper I last read before its members. Mr. Clark, in the last issue of this Journal, criticises the abstract of my paper which appeared in the January number, and has in consequence arrived at certain conclusions respecting it different from those I apprehend he would have come to had he read the paper verbatim. He has evidently quite misunderstood the manner in which I apply nitric acid to an exposed dental pulp. He says, "the absorption and consequent devitalisation of the dental pulp with this acid is very rapid; so that less than two or three minutes will suffice for it to destroy the pulp in its whole length, while the permeation of the alkali would be too slow (after thirty minutes) to arrest the acid in time to form a superficial eschar only. I have seen a case in which alveolar necrosis was the result of its application." When strong nitric acid is applied to a living tissue it is almost immediately decomposed by and enters into a combination with the same, and hence the necessity in destroying even a small nevus by its agency to employ a considerable quantity and often on more than one occasion; the combination first formed protecting underlying layers from its action; it can hardly then be said to be *absorbed* very rapidly by living tissues, and to destroy with the strongest nitric acid a dental pulp in its whole length in less than two or three minutes would demand such a quantity that I am not surprised to learn that alveolar necrosis has been the result of such a wanton employment of so active an agent. The use of an alkali after the application of the acid was not, as Mr. Clark has supposed, to limit the action of the acid upon the dental pulp, but to prevent injurious effects upon the surrounding dentine. I may dismiss this portion of Mr. Clark's criticism by stating that in every case where I had the opportunity of seeing the result of the treatment by nitric acid, and they were not few, the pulp had apparently lost neither substance nor vitality.

In regard to the employment of arsenic as an antiseptic in preference to alcohol, tannic acid, creasote, carbolic acid, &c., used in almost precisely the same manner, and for the same object, I may first state that it is the only reliable one employed by bird-stuffers at the present time. It forms powerful chemical combinations with albuminous bodies not readily decomposable, and is therefore employed by me, not so much to "arrest a purulent discharge from the pulp cavity," as to convert the decomposing contents of a pulp cavity and of necrosed dentine into innocuous and unirritating compounds. With regard to the danger of employing so powerful a drug as arsenic topically, I can only say that I have done so now for quite five years in the manner described in my paper without witnessing the slightest inconvenience, though I have often seen, but from another cause, serious consequences resulting from its application to a living and inflamed dental pulp. I do not share the feeling possessed by many in regard to the danger of the toxic effects of arsenic applied as we apply it, and for this reason, a full dose of Fowler's solution (Liq. Potassa Arsenitis) is ♏xx, and may be given three times a day, = ½ a grain of arsenious acid, applied directly to the mucous membrane, abounding in absorbents within the space of twelve hours; whereas I should apply for once about $\frac{1}{20}$ of a grain, probably less, to the devitalised remains of a structure in which absorbents have not as yet been discovered to exist. I trust these explanations may relieve Mr. Clark from the startling effects the perusal of an abstract of my paper has had upon him, and that he may be induced to give this treatment by arsenic a fair trial himself, as I feel assured, unless I have greatly deceived myself, we have in it the most effectual of any means we at present possess for preserving teeth which otherwise we should condemn to perdition, and if this be so, Mr. Clark has only done a service in again directing attention to the subject.

DENTAL MATERIA MEDICA.

In the February issue, under the above heading, Mr. Merson refers to a solution of gutta percha being superior as a varnish to a solution of wax in chloroform. This is I think a mistake, as a few comparative experiments will prove. The gutta-percha solution will not adhere to any surface unless it is perfectly dry, and has also so great a shrinkage in hardening as frequently to peel away or lift at the edges if applied to a perfectly dry surface; a wax and chloroform varnish will, on the contrary, adhere tenaciously and permanently when rubbed even on a wet surface. The possible and probable presence of more or less moisture during all operations is a point to which sufficient attention has not been given, and few are aware how seriously their results are affected by a trace of moisture so small as to be inappreciable even to a careful operator. As a protection to oxychlorides there is no possible comparison between the two varnishes referred to, the gutta percha being of little or no value as compared with wax. The difference between the two can be readily appreciated by the following means. Drop a small quantity of each into a small quantity of water, shake each up well and pour the mixtures out at once on to a glass slab or any wet surface. Tilt the plate up so as to run off the superfluous liquid, and rub each spot with the finger. The gutta percha will come away entirely without showing any practical amount of adhesion; the wax will rub fast on the plate and cannot be removed without very great difficulty.—THOS. FLETCHER.

THE LAST HINT BY AN OLD DENTIST.

To the Editor of the 'British Journal of Dental Science.'

SIR,—By some mistake I am made to say, in the article entitled "Hints by an Old Dentist," that I fill only one root at a sitting, instead of what was intended, namely, that I fill the root only at one sitting, leaving the crown to be filled at some other time.

As circumstances have arisen which will prevent the continuation of these articles, in order that your readers may know who is responsible for them, I beg leave to subscribe myself,

Your obedient servant,
S. PARSONS SHAW.

Manchester.

[Has Mr. Shaw seen Mr. Coleman's "Hint" at p. 50 of our January issue?—ED. 'B. J. D. S.']

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. BALKWILL, L.D.S., Plymouth.

(*Continued from p.* 73.)

ON REGULATION CASES (*continued*).

WHATEVER means are used in moving teeth, a firm stationary point of attachment or resistance is necessary. When several teeth are capped by the plate this is approximately attained; but the operator must bear in mind that whatever point supports the force which he employs has to sustain as great a strain as that part which he desires to move.

This is well illustrated if we take for example an upper lateral which bites within the lower incisors. In this case the back teeth being capped to keep the mouth open so that the lateral can move forward uninterrupted by the lower incisors, the plate is brought up behind the lateral, and thickened there for a chamber to be cut which receives a block of compressed wood. The plate being tied in, the wood begins to swell and press forward the tooth, but it also raises the plate and tends to draw the teeth to which it is attached out of their sockets. The molars might bear the strain, but they are so far back that, if used, a considerable amount of *giving way* will take place before the real work begins to be done. This "giving way" arises from the elasticity of the plate and ligatures, which can never be made theoretically rigid.

The attachments most advantageous for the sake of the lateral are the canine and central on the same side, but they will certainly be lengthened by so using them. For this reason in most cases we shall avoid attachments to any of the incisors. But if the canines are not quite down and rather projecting, as is often the case, we shall do no harm by making use of them.

In tying a tooth to the plate when it does not cap it: first tie the ligature around the tooth with the knot on the outside close to the gum; then, having two holes drilled through the plate just inside, and opposite where it lies against the tooth, pass the two ends of the ligature through these holes from the under side, slip the plate into its place, and tie them on its lingual surface (see fig. 5).

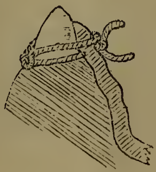

Fig. 5.

It is much easier to tie the ligature to the tooth with the knot on the outside than on the inside, and it then holds the plate much more rigidly in its place; whilst if you simply pass it through the two holes and around the tooth you have an insecure fastening.

When teeth are too crowded it often happens that the canines, not finding room to wedge themselves in, appear high up on the outside of the gum. If the mouth is otherwise healthy and well developed, the extraction of a bicuspid on each side may be all the interference required at our hands; but should the first molars be diseased, this will indicate their removal. Under these circumstances it is often necessary to use a regulating frame; or the canines may not have power enough to move back the bicuspids before the second molar, which, as we have seen in the case of Mr. B—, advances rapidly, has usurped the place of the first molar and checked the backward movement.

To make a plate for such a case, cover the palate with one thickness of rubber, bringing it up to the necks of the teeth but not capping any of them. At the gaps between the laterals and bicuspids carry the rubber up, as if the canine were in its right place, making a sloping plane a quarter of an inch high. Through this drill a hole opposite the middle of the vacancy, to carry a square-headed peg of compressed wood (see fig. 2, in Mr. B—'s case).

It is well to have on hand rods of some soft wood half an inch square. I have used willow, deal, and plane. The last answers very well. Cut off an inch from one of these rods. Place this in a vice with the grain parallel to its jaws. The softer woods can be screwed up to nearly one third of their former diameter; the plane not so much. From this compressed wood cut the pegs. In order to ensure that the pegs are placed with the grain in the same relative position to the sides of the teeth between which it is placed, as it had to the sides of the vice, it is well to mark one side of the wood with a pencil, and keep the mark undisturbed whilst cutting the pegs.

Drill the holes in the plate in such a direction that the peg shall press rather hardly into the gum, as it is advantageous to press the teeth from as low down as possible; partly because the power of the peg is in proportion to the amount of wood acting, and perhaps partly because it sets up a little beneficial irritation. This must not be overdone: it is only meant that the wood should rather press on the gum than be just touching (see fig. 6). A little wedge of

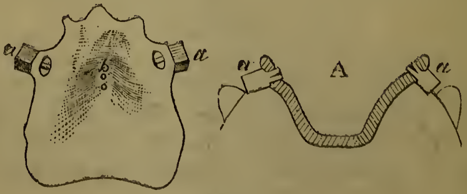

Fig. 6.

wood driven into the small end of the peg after it is in the plate will hold it firmly, and prevent your being annoyed by its coming out and being lost on the carpet when fitting to the mouth with file or penknife (see fig. 6, A, *a*). The pegs may be changed twice a week whilst the space is very narrow, as the amount of wood being small we must make use of every little gain until a peg of some substance is admissible, when visits of once a week will be preferable.

When sufficient space to admit the canines is gained, the same plate will suffice for drawing them into it.

A stout elastic ring, got by cutting off a quarter of an inch from the black rubber tubing sold by druggists for enemas, is tied by the middle to the centre of the palatal portion of the plate (see fig. 6, *b*). Tie ligatures to the canines, and pass one end from each of these through the holes previously occupied by the pegs, through the loop of elastic nearest to it and back, again through the same holes. The elastic is then stretched up to the holes by drawing on these ends, and the two ends of the ligatures being tied keep it there, by its reaction to draw in the canines (see fig. 7).

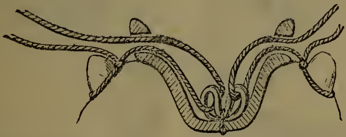

FIG. 7.

It will not be necessary to tie this plate in the mouth when using either wood or rubber, as in each case these tend to keep it in place.

The arch of the incisors supports the pressure in front, so that we need not fear their forward displacement.

The following may be taken as typical cases, and are interesting on other considerations:

The two Misses D—, twins, presented the conditions indicated in a singularly similar degree, as will be seen by reference to the drawings, fig. 8. These are from models taken two days after the extraction of the first molars, all of which were decayed.

These models were taken January 8th, 1874, and the cases finished with the canines in place by the 18th of the following February. The greatest space gained being, on the right side of A, from one eleventh to three tenths of an inch, the other gaps being originally a little wider, the teeth had not quite so far to travel.

I have just taken their models again (the middle of January, 1876). These are now before me. The second molars have entirely taken the place of the first without any apparent leaning forward, but the teeth look as if slightly moved round and forward, using the palatal fang as a pivot. The space gained for the canines has been maintained, yet still the teeth are a little crowded; telling us to bear in mind, after the removal of the first molars has been decided on, the second molars not being visible, that the determined advance of the latter makes the time for the extraction of the former a matter for consideration.

I was not prepared to find so great an expansion of the arch of the mouth between the bicuspids as these mouths present.

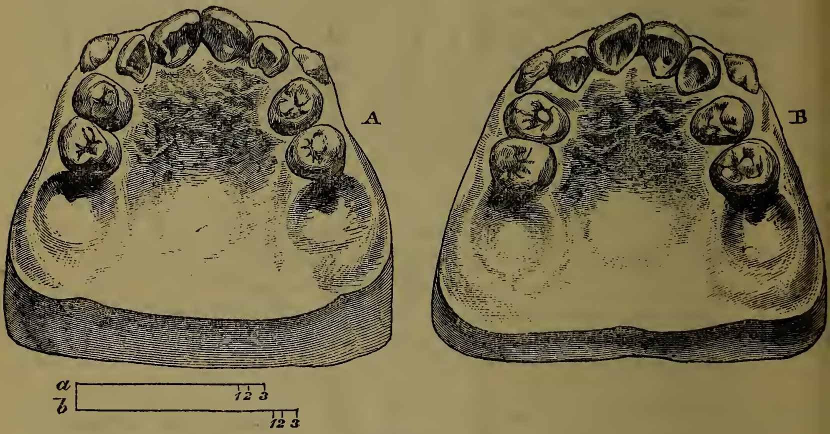

Fig. 8.

Under A, fig. 8, are given the actual widths, measuring to the nearest points of the bicuspids across the mouth at the margin of the gum.

Fig 8, *a* 1, is the width between the first bicuspids before regulation was commenced; *a* 2, is the same measurements after regulating; *a* 3, ditto at present.

Fig. 8, *b* 1, 2, 3, are similar measurements between the second bicuspids; showing a gain since the plates have been left off of one twelfth of an inch.

WALKERS' VULCANIZERS.

To the Editor of the 'British Journal of Dental Science.'

Sir,—Having just seen a letter signed "Redivivus" in your January number respecting our self-regulating vulcanizer, we shall feel obliged by your allowing us to reply to it.

"Redivivus" is of opinion that "81 lbs. pressure per square inch is the highest pressure advisable." We were at one time of the same opinion, and arranged the regulator to keep the pressure at that point, but the liability to produce faulty pieces was so much greater that we were compelled to increase the pressure, the result of our experience being that with the regulator adjusted to 100 lbs. we have not heard of a single failure, although various kinds of rubber are used by our different customers.

As to toughness, we were, the other day, shown a piece done in our vulcanizer, which an experienced Dentist thought to be a metal plate, so tough and horny was it.

The suggestion that the power of rapidly raising the temperature is a disadvantage, was probably a slip, as that can of course be checked to any extent by the gas tap, the peculiarity of our vulcanizer being that, when the maximum temperature is once reached, it will be steadily maintained.

In conclusion, allow us to say that we shall be very pleased to let "Redivivus" have a vulcanizer to experiment with, free of charge, on his applying to us direct.

Yours truly,
Thomas Walker and Son.

Birmingham;
February 19th, 1876.

Literary Notices and Selections.

The Students' Guide to Dental Anatomy and Surgery. By Henry Sewill, M.R.C.S., Dentist to the West London Hospital, &c. London: J. & A. Churchill, New Burlington Street. 1876.

Press of matter prevents our doing more than just acknowledging the receipt of this handy little work. It is a neat and compendious *résumé* of the subject, and cannot but prove a useful little book, not only to the regular student but to many of the old school of practitioners, who desire to refresh their memories and without trouble put themselves *au courant* with the knowledge of the day.

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From January 1st to January 31st, 1876.

Extractions	Children under 14	369
	Adults	530
Under Nitrous Oxide		190
Gold Stoppings		216
White Foil ditto		29
Plastic ditto		188
Irregularities of the Teeth treated surgically and mechanically		43
Miscellaneous Cases		210
Advice Cases		117
Total		1892

James Merson,
Dental House-Surgeon.

British Journal of Dental Science.

LONDON, MARCH, 1876.

It was with mingled feelings of surprise and indignation that we first observed the following notice in the 'Lancet' of January 29th, 1876, which for convenience sake we will divide into four paragraphs and number accordingly:

> 1. "We hear that some of the most eminent members of the Dental profession have met together with the view of forming a society to which only fully qualified surgeons shall be admissible.
> 2. "This society will not be antagonistic to any other existing one.
> 3. "The sole object of those constituting it being to improve the status of Dental surgery, both with regard to professional ethics and education.
> 4. "Hitherto, many of the fully qualified practitioners, who have devoted their attention to the specialty of Dental surgery, have felt that they have been unjustly held responsible for much that they have disapproved on the part of those practising Dental surgery with an inferior, or even, in too many instances, without any qualification whatever."

No one can deny that any number of gentlemen have a right to agree to form themselves into a society, association, or club of any kind, admission to which should depend upon the possession of certain qualifications, although the advisability of so doing may be questioned; and we will therefore dismiss the first paragraph from consideration for the present. The second and third paragraphs are simply so much dust thrown in the eyes of the reader to prevent him from observing the true import of the concluding sentence, with which alone we shall at present deal.

As this last paragraph could only have been penned or inspired either by those present at this meeting, or by some one who felt that he was justly expressing the sentiments of his colleagues, we naturally supposed that, seeing that it was such a deliberate insult to every gentleman holding the Diploma of a Licentiate in Dental Surgery of the Royal College of Surgeons, the term "eminent" in reference to those present at the meeting must have been misapplied, since without a single exception that we know of every English practitioner with the slightest pretension to be called "eminent" (that is, well known either for his literary or administrative work in connection with his profession as well as by his possession of a large practice) either possesses the title in question, or has by his purse, or moral support, indicated his respect for and appreciation of that diploma, it was with considerable regret, therefore, that we next observed a paragraph in the 'British Medical Journal' to the following effect:

> "A New Society of Dental Surgeons.—On the 19th instant a large number of the leading Dental surgeons of London met together, at the invitation of Mr. William Donald Napier, in George Street, Hanover Square, to consider the advisability of forming a society that should consist exclusively of Fellows and Members of the College of Surgeons practising Dentistry. A resolution to this effect, having been put by Mr. Napier, and seconded by Mr. Cartwright, was carried unanimously."

Of Mr. William Donald Napier we know nothing in connection with the improvement or educational advancement of his profession, with the exception of his being the inventor, and we believe patentee, of an india-rubber tooth brush, which is very ingenious, and may possibly rank as an improvement, and of having been some years ago the almost individual opponent of a scheme for promoting peace in the profession, and healing those differences which retarded its educational advancement. We allude to the amalgamation of the College of Dentists with the Odontological Society. Therefore with him we need not further concern ourselves. But with Mr. Cartwright it is different; he, with his father before him, was one of those who united with Mr. John Tomes in the first efforts to obtain a system of education for Dental Surgeons, and in the foundation of that very Dental diploma which is now so openly insulted. He has been a president of the Odontological Society; an officer of the Dental Hospital; a teacher in its Dental School; and a member of the Board of Examiners for the Dental diploma; and of course in each of these three capacities has been for years a recipient of the fees of the Dental students; being, even now, Treasurer to the Dental School. It was therefore with some regret that we saw his name connected apparently with a project which could not be considered as otherwise than depreciatory of the diploma he has done so much to sustain, and induce young men to seek; but we were somewhat relieved when, on closely examining the above paragraph, we observed that the resolution which Mr. Cartwright seconded was only to the effect that the *advisability* of forming a society that should consist exclusively of fellows and members of the College of Surgeons practising Dentistry should be *considered*, and therefore we can conceive it quite possible that such a friend and promoter of the Dental diploma has simply appended his name to the resolution with a view to having the matter definitely discussed, and thus, we hope, enabling him to show those who would promote such a scheme, how utterly unadvisable it is, in the interests of the peace and educational progress of our specialty.

Having thus endeavoured to exonerate Mr. Cartwright from the appearance of being an active promoter of this unfortunate business, we will proceed to examine its bearings on general grounds. We have heard it stated that to suppose that the Dental diploma was meant by the words "an inferior degree" in the above fourth paragraph in the 'Lancet' notice is a gratuitous assumption, and one correspondent who signs himself "one of them" in a wordy ambiguous note to the 'Lancet' which commits him to nothing, says it was not the intention of any one of those present, on the occasion referred to, to class the possessors of the L.D.S. degree with those persons who possess no qualification whatever, and, moreover, that only spurious degrees were alluded to; but inasmuch as "an inferior degree" is spoken of and a spurious degree is no degree at all, the notice in the 'Lancet' can only refer either to the L.D.S. or to the American D.D.S.; but as the few gentlemen in England who hold this degree are with one or two rare exceptions gentlemen of the highest professional tone, never interfering in our Dental politics, they can scarcely be alluded to, there remains therefore only the L.D.S., and we unhesitatingly assert that that diploma was the one alluded to in the objectionable paragraph, and that the object of the original promoters of this new society was to exalt the possessors of the full membership of the College of Surgeons to the manifest disparagement of the L.D.S. degree, which alone is a guarantee that a man has been properly educated in the specialty of Dental surgery.

We have not time now to enter into any arguments in support of this assertion, though we shall not hesitate to do so if necessary at a future time; but even if we could admit that this is a gratuitous assumption on our part, there remains the fact that the terms of this paragraph, which as yet has not been fully or officially repudiated by any one who took part in the George Street meeting, were such as to create so unpleasant a feeling of resentment in the minds of a large number of Licentiates in Dental Surgery, and of discouragement among the students preparing for that degree, that we cannot see how any gentleman holding any office in connection with the Dental diploma, and receiving the fees of the students, can consistently join the proposed society, nor how they can consistently assist in inducing young men to spend time and money in obtaining a degree the possession of which does not entitle them to membership in any society composed of gentlemen practising the specialty of Dental Surgery.

We have heard it stated that the existence of such an exclusive society will induce students to qualify for the membership as well as for the Dental diploma, but we are confident that if it does so in some instances it will often be to the exclusion of their fulfilling the requirements of the Dental Licentiate curriculum, which alone can give them the fitting education of a Dental Surgeon, and seeing that a large number of practical men will realise this fact, it will tend to promote a desire for the formation of a separate body of Dentists, and thus undo all the good work which has been carried on for the last twenty years, tending gradually to the admission of Dental Surgery into the list of specialties included in the science of medicine and surgery. We would earnestly warn the promoters of this new scheme that if they draw themselves off from the general body of Dentists, vainly endeavouring to make their medical friends believe that they are something vastly superior to their brother specialists, and thus force the latter into some independent organisation, which we should earnestly deplore as inferior to a close union with medicine and surgery, they, the supposed *élite*, will find that notwithstanding their pretensions, the public and the general body of medical practitioners will look upon them still simply as Dentists, and hold them more than ever responsible for the shortcomings of the brethren they have sought to cast from them.

We would earnestly entreat these gentlemen, therefore, rather to combine loyally with existing Dental institutions, and endeavour, as we have always done, to improve and elevate each department of it, and so gradually wipe out the stains that attach to the word *Dentist*—disguise it as much as you may by the addition of the word surgeon. Let them join the movement which has been so well inaugurated with the sanction of world-known names to bring about the result that the word *Dentist* shall mean a gentleman with a medical qualification, in the same way that an oculist, an aurist, can only mean one who is a surgeon; when that is brought about, the words Surgeon-Dentist, Dental Surgeon, will be of the same signification as Ophthalmic or Aural Surgeon; whereas at present the more sounding title is usually borne by the most thorough quack, and the one least entitled to bear it.

We have but little space or time left, otherwise we would fain point out the utter inconsistency of these gentlemen, who, whilst claiming a higher status than their brethren, because they possess a purely medical degree, seem to forget that as fully qualified medical practitioners all existing medical societies are open to them; indeed the endeavour to found an independent society for the discussion of purely special subjects would serve to indicate that they lack the talent or tact to bring their specialty creditably before a medical society, or to take part with any degree of ability in those matters pertaining to general surgery which are brought under their notice.

Who has brought out the best known work on diseases of the jaws?—one of these surgeons practising Dentistry? No, a Surgeon pure! Who is now arranging in our pages a series of papers on the antrum, a cavity so intimately connected with the teeth? Who formerly contributed some papers on the connection between the teeth and disease of the eyes? Who wrote upon the effect of gout on the teeth? Who brought under the notice of the medical profession the value of the teeth in the diagnosis of syphilis? Certainly no one of these gentlemen who now seek to repudiate their brother specialists, but the surgeons pure who do *not* practise Dentistry; and what we would infer is—that if our ambitious friends would bring a few such matters before the medical societies, they would command attention and a greater respect for their specialty than they do now.

We would further venture to inquire how is it, if this new society is to be of such immense value to the profession, "that it is to produce a closer association of the "more highly qualified members of the profession, the "formulation of an improved code of etiquette, the aboli- "tion of that advertising system which does so much "to degrade the calling and generally the elevation of "the status and morale of Dentists" (*sic*)? How is it, we repeat, that a meeting of all those who possessed the requisite qualifications was not summoned by circular, instead of the whole thing being carried on like some secret conspiracy, to such an extent, that on inquiry, the greatest reluctance is shown to let the names of those present at this private dinner party, which resulted in public paragraphs, be known.

Surely, if the object is, as it is stated to be, to induce young practitioners to prepare for the full membership of the College of Surgeons, the readiest way to obtain access to them would have been through the pages of the Dental press; but as yet all is mystery and secrecy. With the exception of the mover and seconder of the first tentative resolution, not a man amongst them has had the pluck to come forward in the public prints to avow his principles or instruct his brethren in the advantages of this new society; but they are compelled to shelter themselves under anonymous signatures and quasi-editorial notices, which some of the real editors must blush to see in their pages. In truth, the whole affair is of such a nature that were it not for the unfortunate impressions which it has given rise to in the minds of many old and highly esteemed practitioners who hold the L.D.S. diploma alone, and in the minds of the industrious and hardworking students of the Dental Hospital, we should not have deemed it worthy of notice; but heralded as it was with such deliberate insult to a large body of educated practitioners, an insult which yet remains unofficially repudiated, we have deemed it our duty to point out that, so far from tending to promote the more intimate union of our specialty with general surgery, it will, unless held in check, do more to effect a total separation of the two than anything that has yet occurred in the history of Dental Surgery.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

MONTHLY MEETING, MONDAY, FEBRUARY 7TH, 1876.

CHARLES VASEY, Esq., President, in the Chair.

At this meeting, and the meeting of January 10th, the following gentlemen were proposed as members:

On January 10th—

(Resident.)

Mr. David Cormack, 77, Margaret Street, Cavendish Square, W.
Mr. George William Field, 39, Upper Brook Street, Grosvenor Square, W.

Mr. George William Payne, 34, Ebury Street, S.W.
Mr. Louis Bergoyne Pillin, Conduit Street, W.
Mr. Augustus Winterbottom, 16, Sloane Street, W.

(Non-resident.)

Mr. J. F. Corbett, 3, South Mall, Cork.
Mr. George Hilditch Harding, Manchester.
Mr. Frank Alexander Huet, 120, Oxford Street, Manchester.
Mr. Hugh Paterson, Sydney, Australia.

On February 7th—

Mr. Edward Binns, L.D.S., 70, Linthorpe Road, Middlesborough.
Mr. Edward Reading, 117, Castlereagh Street, Sydney.

And the following were elected:

On January 10th—

(Resident.)

Mr. Alexander Cartwright, 32, Old Burlington Street, W.
Mr. Thomas Gaddes, 169, Prince of Wales Road, N.W.
Mr. David Hepburn, 9, Portland Place, W.

(Non-resident.)

Mr. Robert Hopkinson, 32, Broughton Road, Salford.
Mr. Thomas M. Kelly, 94, Oxford Street, Manchester.
Mr. Evelyn Pierrepoint, 359, Oxford Street, Manchester.
Mr. Edward N. Washbourne, Mount Pleasant, Tunbridge Wells.
Mr. Sidney Wormald, Wellington Road South, Stockport.
Mr. Thomas Wormald, 188, Union Street, E.; Rhodes Bank, Oldham.

On February 7th—

(Resident.)

Mr. J. H. Whatford, L.D.S., 37, Cavendish Square, London.

(Non-resident.)

Mr. William Henry Mallett, 1, Bedford Crescent, Exeter.
Sig. Luigi Martini, Via-di-Po, Turin.
Mr. George Robinson. Douglas, Isle of Man.

Mr. Charles Tomes announced the following donations to the museum received since the last meeting:—From Mr. Saunders, a considerable number of specimens, including a series of lower jaws, which had been cut in sections in various directions so as to show the relation of the teeth to the alveolar processes; and a plaster model of the head of a microcephalic idiot. From Mr. Gaine, of Bath, a specimen of phosphorus necrosis of the lower jaw and a dilacerated tooth. From Mr. Brand, of Exeter, the pharyngeal teeth of a large Indian fish. From Mr. Harding, a specimen of salivary calculus, and some upper teeth excessively worn by friction of the lower teeth. From Mr. Charles Rogers, models of a supernumerary tooth occurring in both dentitions. From Mr. Stocken, a specimen of geminated teeth; and from Mr. Clifford Eskell, a large dried dissection showing the direction of the nerves and the vessels.

Mr. Coleman described what he called a daybook for recording cases; he also stated that at his request Mr.

Merson had carried out twelve experiments in the application of the pepsine paste. The pepsine was made into a thick paste with glycerine, and slightly acidulated with dilute hydrochloric acid. The cavities having been syringed or mopped out with tepid water, the pepsine was conveyed to the teeth in a pledget of cotton, and finally covered over with cotton containing a solution of mastic. The results, however, had not been very satisfactory. Mr. Merson admitted that he might not have applied the agent in precisely the same manner as directed by Mr. Oakley Coles, and if so he would be glad to try a further series of cases with the pepsine.

The President described what he considered an improvement on Mr. Coleman's diagram for registering cases, which saved a considerable amount of time and labour.

Mr. Stocken exhibited a book for registering cases so as to secure regularity in the numbering of models.

Mr. Oakley Coles, referring to Mr. Merson's experiments in the application of pepsine, said the cavity should be wiped out or syringed, not with water, but with dilute hydrochloric acid, and the pepsine should be put in solid on wool. Instead of being sealed up with mastic, wax should be used, as the presence of the spirit to some extent counteracted the action of the pepsine.

Mr. Underwood, referring to Mr. Rogers' models of supernumerary incisors, related an instance of a child who had three perfectly well-formed central incisors both in the first and in the permanent set, the peculiarity being that in the second set one was turned, round presenting its side to the front of the mouth.

The President, after a short address on his election to the chair, then called upon Mr. Henry, who read a paper "On the Conservative Treatment of the Dental Pulp when Exposed *versus* Devitalization."

In the discussion that ensued—

Mr. Coleman said that his practice had been somewhat misunderstood. When he had the opportunity he always cleared out the contents of the fang, but the mere clearing out did not render pure the previously putrid tooth. In many cases it was almost impossible to clear out the contents without almost destroying the fangs, and then he employed arsenic. In clearing out the fangs there was also a danger of forcing some of the putrid matter beyond the apex of the fang. He had used arsenic for nearly five years and had never seen the slightest indication of mischief arising from its application, although when employed in devitalising pulp it not infrequently happened that the intense amount of inflammation readily extended itself to the surrounding membranes. He believed that if the members of the Society gave arsenic a fair trial they would find it to be one of the best cures for periostitis that had ever been brought before their notice.

Mr. Moore said that caustic potash was, perhaps, the strongest escharotic for sudden application, and the simplest thing to apply after that would be a preparation of the superacetate of lead in solution. The healing process should be complete before the filling process was commenced, otherwise the tooth might be lost altogether.

Mr. Charles Tomes said that undoubtedly the great objection to devitalising pulps was that after they were devitalised there was a tendency to alveolar abscess. It was not known what the purpose of the pulp was in a finished tooth, nor why the tooth should not do just as well without it. As a matter of fact there were a good many teeth in other animals which did just as well without pulp and which lasted sufficiently for the animal's requirements during its lifetime. There were certain teeth, for instance, in lizards, in which there was no central living vascular pulp, yet they were not rejected by the creature as dead things to be thrown off. Until a little more was known as to the use of the pulp in a perfect tooth he did not think that they were in a position to bring it in as something influencing their practice. In the present state of their knowledge all the arguments about devitalising the pulp should be confined to the danger resulting from it by the occurrence of alveolar abscess. Mr. Coleman had struck a chord well worthy of consideration in speaking of the extension of inflammation from the pulp as being capable of causing periostitis over and above the liability to have periostitis produced by putrefying matter. The vascular and nervous supply of the periosteum of the tooth happened to be very nearly identical with that of the tooth pulp, the greater part of the nerves and vessels of the periosteum being derived from the tooth pulp. It was a matter of everyday experience that tenderness in the periosteum might be alleviated almost in a moment by applications to the tooth pulp. Mr. Coleman's remarks about the antiseptic action of arsenic reminded him of the difficulty that was anticipated whenever a molar tooth had to be treated, in carrying the application down to the end of the fang which was being devitalised, either by arsenic or by the spontaneous death of the pulp. It would be a grand thing if some antiseptic could be got which would travel sufficiently far to render unsusceptible of decomposition the remains of the nerve itself in the root of the tooth. A more perfect fang filling than the nerve of a tooth converted into something like leather could not be conceived. The misfortune was that the antiseptics in use did not travel far, because they caused coagulation of the albumen and thus barred their progress.

Mr. Sewill asked Mr. Tomes whether the statement made by him, that the vascular supply of the periosteum was derived principally from the vessels which go from the pulp, was based on his own observation or on the observations of others.

Mr. White said he went heart and hand with Mr. Henry in reference to the conservative treatment of pulp, but he could not join him in a wholesale depreciation of the use of arsenious acid. For many years he had set himself against the use of creosote, morphia, and arsenious acid, considering it decidedly advisable to save the pulp if it could be done. Having exposed the pulp, and given a plentiful supply of a preparation of glycerine and carbolic acid, he capped it with hard pieces of vulcanite rubber, and filled upon that. In such cases he had not met with anything like periostitis; if, however, the pulp was suppurating or at all decomposed he had applied a paste made of arsenious acid, carbolic acid, and glycerine. He found this always successful and manageable, and therefore he did not care about trying other remedies.

Mr. Charles Tomes, in reply to Mr. Sewill's question, said that he had not quoted any particular authority in support of his statement that the nerves and vessels of the periosteum were mostly connected with the nerves and vessels of the pulp, because he had regarded it as part of the general stock of knowledge of the profession. He had himself seen it repeatedly in fortunate sections.

Mr. Sewill said if the vascular supply of the periosteum was derived from some vessels which go into the pulp, they could more easily understand the readiness with which inflammation might spread from the pulp to the periosteum. He believed that with absolute alcohol in many cases portions of the pulp might be put in such a condition that it would be incapable of decay. He had used absolute alcohol constantly in fang filling for some time. He first removed as much as possible of the pulp, then dried the cavity roughly, and then pumped absolute alcohol into the roots on filaments of wool. If there were any shreds of pulp in the depths they were dried, shrivelled, and rendered undecomposable. The roots should then be filled with liquid oxychloride of zinc, sometimes mixed with filaments of cotton wool in order to carry it to the deepest parts. With such treatment he believed some of the pulp might be left without giving rise to symptoms, provided the pulp was not decomposed and retained to some extent its structure. Mr. Henry appeared to recognise only one pathological condition of suppurating pulp, but there might be atrophy, degeneration, or granulations, which when they assumed a large form were called polypus, and he did not think it likely that all these conditions could be successfully treated by one method. If a pulp were divided into four portions at the roots of the tooth, two or three being gangrenous and one living, how could it be treated except by destroying the remaining portions?

Mr. A. W. Barrett said that in the majority of cases after the destruction of the nerve by arsenic and subsequent filling of the tooth, alveolar abscess ensued, necessitating, perhaps, the extraction of the tooth. He believed this could be prevented by the use of carbolic acid. For the last four years he had frequently destroyed pulps with arsenious acid. After the arsenic had acted on the pulp for two days, he removed the devitalised pulp as thoroughly as he could, then plugged the fangs and pulp cavity with cotton wool soaked in carbolic acid, mopping the interior of the fangs and working it up and down so that the liquid carbolic acid might penetrate into the extremities of the fangs. He did not recollect a single case of alveolar abscess resulting after this treatment, and he considered that the good effect was due to the prevention of decomposition brought about by the employment of carbolic acid.

Mr. Dennant said that for many years his treatment of the pulp had coincided with that recommended by Mr. Henry; but he thought Mr. Coleman's suggestion of using arsenic purely for its antiseptic properties was worthy of consideration, and he should avail himself of it.

Mr. West said he had used arsenic for a great many years without being satisfied with the results produced, but since he had heard of Mr. Henry's treatment he had tried it, and it had proved successful, though his experience of it was not long enough to enable him to judge decisively as to its advantages.

Mr. Thomas Rogers said his practice had always been to endeavour to save the pulp up to the time of suppuration or loss of substance, but after that he had not seen his way to attempting its preservation. He thought the carbolic acid treatment would not prove satisfactory after three or four years, unless something could be done to get the pulp to calcify. He suggested that the attention of those who set themselves to inquire into the treatment of pulp should be first directed to the nature of the dentine pulp itself, which he apprehended was a kind of differentia of mucous tissue approximating to periosteum, at all events in the bone formation. Next they should study the treatment of diseases of such tissues in general surgery in other parts of the body; then pass in review the previous treatment of exposed pulps, and apply the principles so gained to Dental surgery.

Mr. A. W. Barrett considered that carbolic acid exercised an antiseptic action on the uttermost filaments of the pulp.

Mr. Stocker said he had followed Mr. Henry's method of treatment for two or three years, with almost uniform success. He had adopted it in cases of suppuration, and though some few weeks were required in such cases before the cure was effected, he had ultimately succeeded.

Mr. Merson said when the pulp had become exposed by accident, his practice had been to immediately apply carbolic acid on blotting paper, and cover in with osteo. At the expiration of a month he cut out a portion of the osteo and filled in with amalgam or gold.

Mr. Turner recommended greater particularity of expression in describing the treatment resorted to, as the preparations of arsenic, carbolic acid, &c., used by different practitioners might be greatly dissimilar. He had not used arsenic for many years, but he was beginning to use it more frequently than formerly.

Mr. Henry, in reply, said he did not think carbolic acid caused coagulation of the entire pulp; on the contrary, there was a vital action which resisted it. The surface which had been so treated became converted into a healthy state. What the ultimate result was he was not prepared to say. Probably it might retire for a little, and a natural vacuum might be formed without any unsatisfactory result; but the success which had attended his treatment had been complete. Mr. Coleman's antiseptic use of arsenic certainly commended itself for trial, but he had confined his remarks in the paper to the treatment of living pulps. He hoped that gentlemen who still used arsenic would give his method a trial, and he was convinced they would be satisfied with the results they attained.

Votes of thanks were accorded to Mr. Henry, and the several donors to the museum, and the meeting adjourned.

DENTAL STUDENTS' SOCIETY.

Annual General Meeting, held February 14th, 1876.

David Hepburn, Esq., L.D.S., President, in the chair.

The minutes of the previous meeting were read and confirmed, Messrs. Baker and Rowney elected, and Mr. Macy was proposed as a member.

Mr. Glassington showed two pieces of bone taken from the left inferior maxilla of a child nine years old who had suffered from low fever.

The President announced that S. H. Cartwright, Esq., and A. G. Medwin, Esq., had consented to act as judges for the prizes to be given for the best papers of the session.

The Secretary then announced that T. A. Rogers, Esq., had presented the Society with some more specimens for the microscope, for which a vote of thanks was proposed, and received with unanimous applause.

The Chairman then called upon Mr. Baker, M.B., M.Ch. (Dublin), to read his paper on 'Fracture of the Lower Maxilla.'

Mr. President and Gentlemen,—In bringing under your notice fractures of the lower jaw, I do not for a moment propose to add anything from my personal experience to what has already been so ably penned by Malgaigne, Hamilton, Heath, and other writers on the subject. What I have endeavoured to do is rather to collect, and bring into harmony, the opinions of the distinguished surgeons I have mentioned, and to place them before you in as concise a form as possible. How far I have succeeded in my attempt I leave you to judge. If I do not enter as fully into the cause, position, complications, and recognition of these injuries, as you, and I also, would wish, I will ask you to excuse me on account of the necessary limits of a paper, and more especially on the ground that I intend to devote the larger portion of my paper to the discussion of the point so essentially ours, namely, the various modes of keeping the fragments in apposition.

Among the various accidents which have caused this injury, we most frequently find some form of direct violence, such as blows, kicks, falls, and gunshot wounds, while the custom of extracting teeth with a key adds not a few victims to the list. I myself remember seeing, at Dr. Steevens' Hospital in Dublin, a fine young man, in the constabulary force, whose health was completely broken by a fracture occurring in that manner in the upper jaw. But the key is not the only dental instrument which has been the cause of this disaster; for Dr. Richardson, a practitioner of no little experience, relates a case where he was unfortunate enough to cause fracture of the lower jaw in removing a molar tooth with the forceps. Explosions of powder in the immediate neighbourhood of the jaw, as in the case of suicides discharging a pistol into the mouth, accounts for several cases; while Professor Pancoast relates a case in which an old man of seventy succeeded in producing this injury by a violent fit of coughing. Fractures of the ramus, according to Mr. Heath, are generally produced by crushing injuries, such as the passage of a cart wheel over the face. Force applied to the angles of the jaw by the passage of a wheel over the face, or by the pressure of opposing bodies, generally results in fracture of the symphysis, but Mr. Hamilton relates a case where a boy was pressed between two waggons, and sustained a fracture in front of the right bicuspid; and most of you will remember the case we had the opportunity of examining in this hospital about ten days ago, when, from a similar cause, there was a fracture in front of the left angle about the second molar tooth; this case was also a good example of the treatment advocated by Sir William Fergusson, namely, a simple four-tailed bandage, for the fracture was uniting without the least deformity.

In the lower jaw the body is the portion most frequently injured; the greater depth of the socket of the canine tooth, and consequent weakness of the bone at that point, renders it the seat of the majority of the fractures on record. The ramus from its position and coverings is much less liable to injury, except from extreme violence. And, notwithstanding Boyer's statement to the contrary, solution of continuity has occurred perpendicularly through the symphysis, in cases where the age prevented the possibility of separation of the two bones, which, as you know, unite about the end of the first year. The angle also is fractured in a fair proportion of cases, 20 per cent. according to Hamilton, and is frequently attended by a lesion elsewhere in the bone. Malgaigne says that the analysis of fractures of the neck of the condyle shows two classes of examples: the one occasioned by falls or blows on the chin, and producing a simple fracture of the neck of the condyle; the other occasioned by injuries inflicted upon the side of the face, and producing a fracture of the neck on the side corresponding to that on which the injuries are received, and at the same time a fracture of the body upon the opposite side.

Fractures of the lower jaw are remarkable for the fact that they are almost always compound towards the mouth, though the skin is rarely involved except in gunshot injuries;

this statement applies, however, only to fractures of the body of the bone, for when the ramus, or still more the coronoid process or condyle, are broken, the bone is too deeply seated for the injury to extend into the mouth. So writes Mr. Heath. I, however, through the kindness of Mr. Moon, had the good fortune to see at Guy's Hospital a case of fracture of the lower jaw which was made compound externally, by means of a largish wound under the chin; the injury was produced by a blow from a log of timber which was tilted up suddenly and struck the patient under the chin. Lesions in any of the positions I have mentioned may in addition to being compound be comminuted, T-shaped, or multiple; the comminution occurring chiefly in gunshot injuries.

The line of fracture, except at the symphysis, is usually oblique, and, according to Malgaigne, the thickness of the bone is also divided obliquely, so that the anterior fragment is made at the expense of the internal face of the bone, and the posterior fragment at the expense of the external face; this latter overriding the former. With regard to comminuted fractures, Malgaigne remarks, "there is one principle which surgeons cannot too much study, namely, that all fragments, however slightly adherent they may be, ought to be most carefully preserved, and they will be found to unite with the most wonderful ease." These remarks are quite borne out by the experiences of surgeons in the Crimean and American wars. Unfortunately this is not the only complication that one is likely to meet with in fractures in this region, for hæmorrhage frequently embarrasses our treatment; it is best allayed by the application of cold, styptics, and as a last resource the actual cautery; ligature of the carotid artery has proved most unsatisfactory in these cases. In addition to the complications I have mentioned, which are more frequently met with in the upper than in the lower jaw, you may have fracture or dislocation of the teeth, either from direct violence or the fracture running through the socket of the tooth; this last resulting, according to Mr. Tomes, from the teeth of the lower jaw being forcibly driven against those of the upper. Where the fracture has passed through the socket, the tooth may fall between the edges of the bone and prevent their proper coaptation; this should be borne in mind where a tooth is missing and difficulty is experienced in setting the fracture, since Erichsen mentions a case where union was prevented until the tooth was removed. Mr. Vasey has noticed, in the rare accident of fracture of the jaw in children, when the cavity in which a permanent tooth is being developed, is involved, exfoliation of the tooth with a portion of the alveolus is almost certain to ensue; this remark was fully borne out in a case I had recently the opportunity of examining in this institution. Paralysis and neuralgia arising from lesion of the inferior dental nerve may follow at once on the occurrence of the injury, or may supervene at a more remote period from the pressure of developing callus; in the majority of cases there is, however, no injury of the nerve, which, as Boyer suggests, is due to the fact that the greater part of these fractures take place between the symphysis and the foramen by which the nerve comes out; a statement on which Hamilton throws some doubts. Abscess is frequently connected with severe injuries of the jaw, and in neglected cases may be joined with necrosis, but Mr. Heath is of opinion that it is as much the result of injudicious pressure of the retentive apparatus as of the injury. Salivary fistula may follow this complication or be the result of a compound fracture. Necrosis, except when it involves the whole thickness of the jaw, as in comminuted injuries, occasions little or no deformity, but it may delay the union of the parts until the sequestrum has been exfoliated. There are only four cases on record where dislocation has accompanied fracture of the lower jaw; the treatment in these cases is to reduce the dislocation before setting the fracture. Irregular union occurs most frequently in cases of double fracture, where the muscles attached to the hyoid bone draw downwards and backwards the anterior portion of the jaw; in such a case it is almost impossible to keep the parts in their proper position. Cases in which non-union has taken place are sufficiently rare, and arise as much from over-solicitous attention as neglect; they have been recorded by Dupuytren, Physick, and other authorities; but Hamilton states that in no instance under his observation has the bone refused finally to unite, though union has been delayed as long as eleven weeks. False joints occur, according to Norris, in only one and a half per cent. of the cases.

In fractures of the body of the lower jaw you have the usual signs of fracture elsewhere, namely, displacement, mobility, crepitus, and pain; in addition to these the patient assumes a very characteristic position, supporting the injured parts with his hands.

The direction and amount of displacement vary with the situation and course of the fracture, and also with the violence and direction of the force producing the injury. Mr. Hamilton met with one case in a boy, æt. 9, where there was no displacement; this he regarded as a case of partial fracture. As a general rule, where fractures occur in the body, the anterior fragment is depressed, and, according to Malgaigne, where you have overlapping the anterior fragment lies within the posterior; which he accounts for by the direction the line of fracture usually takes, namely, from without inwards and backwards. Boyer, S. Cooper, Erichsen, and Malgaigne have remarked that muscular action on the anterior fragment is greater in proportion as the fracture is nearer the symphysis, and less in proportion as it approaches the angle. Mr. Liston, on the contrary, finds that the point of greatest displacement is opposite the first molar. If the fracture occur on one side alone, motion and crepitus will be most easily perceived by lateral pressure upon the posterior fragment, which is the smallest and least supported by antagonising muscles, if both sides are fractured, then by grasping the anterior fragment and gently moving it up and down, while the finger rests on the alveolar process within the mouth, you will obtain mobility and crepitus. Sometimes slight swelling or tenderness, the loosening or dislocation of a tooth at a point in the dental arch, will disclose the otherwise hidden seat of fracture. Pain is a very constant symptom, and is specially evident when the fragments are moved. Fractures of the ramus are easily recognised by the crepitus and mobility and do not require special notice. Mr. Hamilton thinks it probable that an examination by the finger in the mouth would detect the mobility and displacement in cases of fracture of the coronoid process. A fracture through the neck of the condyle is characterised by pain at the seat of fracture, especially recognised when an attempt is made to open or shut the mouth, by embarrassment in the motions of the jaw, by crepitus, which may usually be felt or heard by the patient, by mobility and displacement. It is important to remember in making the differential diagnosis between fracture of the neck of the condyle, and luxation of one condyle, that the chin is displaced towards the fracture and away from the luxation.

From the abundant vascular supply and the general tendency to union, a favorable prognosis is the rule; serious deformity occurring in those cases where there has been extensive necrosis as in the comminution resulting from gunshot wounds. The proximity of fracture of the neck of the condyle to the articulating surface may occasion contraction of the ligaments about the joint; this usually remains but for a short time.

With regard to the healing process of fractures of the jaw, modern surgical pathology teaches us that from seven to nine days after the injury the swelling of the adjacent parts subsides, and in three or four days more no trace of extravasated blood will remain; whether it is reabsorbed or partly organised into callus is still a disputed point. The hard, firm, immoveable tumour, called external callus, which now appears round the seat of injury, is in these cases very slightly developed, on account of the trifling displacement of the fragments; but the cavities of the spongy bone substance in the immediate neighbourhood of the fracture are filled with it. This new formation that results from the fracture occurs in the Haversian canals and medullary spaces of the bone, in the periosteum, and is infiltrated in the adjacent muscles and tendons. It consists at first of small round cells, which increase greatly in number, infiltrate the tissues mentioned, and then almost takes their place; this callus, growing from out of the Haversian canals and medullary spaces, meets the callus from the other fragment and unites with it, as in healing of the soft parts. Under normal circumstances the callus now ossifies; this ossification may either occur directly or after it has been transformed to cartilage. The external callus, if present, and likewise a portion at least of the internal, is gradually absorbed, so that in course of time, if there has been no displacement of the fragments, no trace of the fracture will remain. This, gentlemen, is what Dame Nature is doing for our patient; let us now consider how by our treatment we can best assist her.

There is a difference of opinion among authorities as to the extraction of loosened or dislocated teeth. Malgaigne, Erichsen, and Tomes, all think that it would be better to restore the teeth to their sockets, but Hamilton thinks otherwise, and I will quote you his remarks on the subject:—"The few attempts which I have made to restore a completely dislocated tooth to its socket, or to retain it in place when very much loosened, have generally resulted in its removal at some later day, and especially when the fracture has been near the angle and a molar has been disturbed. I believe it would be better practice always to remove the molars under these circumstances, unless they remain attached to the alveoli, and cannot be removed without bringing them away also; and this whether the loosened teeth are situated in the line of fracture or not. It is seldom that they can be made again to occupy their sockets perfectly, and where the teeth are in the line of the fracture the attempt to restore them to place will sometimes prevent the proper adjustment of the fragments. In cases also in which the teeth farther forwards are completely dislodged at the seat of fracture it is scarcely worth while to replace them. As to those teeth whose loosened condition is due only to a splitting of the alveoli, the same rule will not always apply. Sometimes after a careful readjustment the fragments reunite, and the teeth remain firm. If the bone is chipped off upon the outside, through or near the line of the sockets, the teeth may not be always much disturbed, and the loss of the fragments may be of less consequence, nor have I generally succeeded in saving them; yet if they remain adherent to the soft parts it is proper to make the attempt."

In describing the various modes of keeping the fragments in apposition, I do not think I can improve on Mr. Heath's division of apparatus, namely, those applied externally, those applied internally, and a combination of both these methods; so I will proceed to consider them in that order.

The treatment of fractures of the inferior maxilla by a single-headed roller is advocated by some American surgeons; this, the simplest form of an external apparatus, is applied as follows:—A cotton or linen compress of moderate thickness is placed under the chin, and held there by an assistant while the surgeon takes a roller four or five yards long, and passes it by several successive turns under the jaw, up along the sides of the face, and over the head; then changing the course of the bandage, he causes it to pass around the temple, occiput, and forehead; finally, to make secure, several additional turns are made around the back of the neck, under the ear, along the base of the jaw, over the chin, taking care to fix one or more pins at every point at which the roller has crossed.

The four-tailed bandage has for its supporters Boyer, Skey, Syme, Fergusson, and a host of others not less distinguished in the surgical world; it consists, as you are doubtless well aware, of a bandage about a yard long and three inches wide, which should have a slit four inches long cut in the centre of it, parallel to and an inch from the edge. The ends of the bandage should be split to within a couple of inches of the slit. The central slit can be readily adapted to the chin, the narrow portion going in front of the lower lip, and the broader beneath the jaw; and the two tails corresponding to the lower part of the bandage are then to be carried over the top of the head, while the others are crossed over them and tied around the nape of the neck. The ends of the two bandages may then be knotted together. Unfortunately this bandage has a tendency, when the fracture is double, to carry the anterior fragment backwards; so Hamilton devised a special apparatus which remedies this defect.

It is composed of a firm leather strap called maxillary, which, passing perpendicularly upwards from under the chin, is made to buckle upon the top of the head, at a point near the situation of the anterior fontanelle. This strap is supported by two counter straps called respectively occipital and frontal, made of strong linen webbing. One of these, the occipital, is attached to the posterior margin of the maxillary strap about half an inch above the ear, and being carried round behind and *under* the occiput is buckled at a point exactly corresponding to its origin. The frontal stay simply antagonises the occipital. The maxillary strap is narrow under the chin, to avoid pressure on the front of the neck; the anterior margin of this band, at the point corresponding to the symphysis menti, and for two inches along each side, is supplied with thread holes, for the purpose of attaching a piece of linen which shall cross the front of the chin and prevent the maxillary strap from sliding backwards against the front of the neck. The advantage of this dressing consists in its capability to lift the anterior fragment almost vertically, and at the same time there is no danger of its falling forwards and downwards on the forehead.

External splints, applied along the base or outside of the jaw, were first recommended by Ambrose Paré, who used for this purpose leather; the materials at present most generally in use are pasteboard and gutta percha. Whichever of these is selected, being cut long enough to pass well up the sides of the jaw, is to be divided at the ends, so as to resemble the four-tailed bandage. Being then softened in warm water it can be adapted to the jaw, the chin resting on its centre; the sides being doubled beneath and around the bone. A splint of this kind is frequently employed with the sling or four-tailed bandage.

About the simplest form of internal apparatus is a ligature passed around the teeth on either side of the fracture; this was first suggested by Hippocrates, and since his time this method has been sanctioned by Cooper, Skey, Erichsen, and others, but condemned by Malgaigne, Boyer, and Gibson. As a material for the ligature, Celsus recommended horsehair, but fine gold, platinum, or silver wire, and firm silk or linen threads have been used. With regard to the application of the ligature, there is a case on record where the dentist Lemaire, being applied to by Dupuytren to secure in place the ununited fragments of a broken jaw, fastened the upper and lower left canine teeth to each other by a platinum wire, in the manner suggested by Salicet; to this he added two other modes of ligature which were altogether original. One wire, made fast to the last molar upon one side, traversed the mouth and was secured to one of the bicuspids upon the opposite side; the other was stretched from the first inferior bicuspid on the right to the first superior bicuspid on the left. A cure was accomplished at the end of two months, but one of the wires had nearly bisected the tongue; and as it had gradually become imbedded, the flesh had closed over it until it rested like a seton through the middle of the tongue.

The ligature acts only on the upper extremity of the line of fracture, leaving its lower portion liable to be easily disturbed, and not unfrequently, when with some trouble it is made fast, it becomes disarranged or broken. Sound teeth embraced by it may loosen, or it may press upon and inflame the gum.

Ligature or suture has also been applied to the bone itself by perforating the fragments and wiring them together with silver wire, or, as Mr. Wheelhouse, of Leeds, in a case of triple fracture, kept the fragments at the symphysis together by inserting silver pins into the substance of the bone, and passed a figure-of-eight silk ligature around them.

In a case of vertical fracture through the symphysis, Dr. Ellis, a transatlantic surgeon, in order to keep the parts in position, placed the mainspring of a watch within the dental arcade, securing it round the teeth with silver wire; the fragments united with slight vertical displacement.

In a paper read before this Society Mr. Hammond mentions a splint employed by him in the Franco-Prussian war. As you may remember, it consisted of a loop of strong iron wire, bent round so as to encircle all or any desired number of the teeth at the level of their necks. The ends of the wire are soldered together, and the finer adjustments are given to the frame with a pair of small curved pliers. This collar is slipped over the teeth, and is tied in place by short pieces of thin binding wire passed round each tooth, and interlaced with the frame. Within the last fortnight I assisted Mr. Moon in applying one of these splints to a patient under his care at Guy's Hospital, and it appeared to me to act very well in keeping the fragments in apposition.

Before going further, it would be well to say a few words about getting a correct model of the jaw, which would be required for the splint I last mentioned. The best material for taking an impression in these cases is "Stent," as it is not so liable to drag on withdrawal from the mouth, and it will often be found necessary to use an impression tray that is adapted to take only half the jaw. The impression is taken without the fragments being brought into place, and a plaster model made from it; then if the displacement is simply vertical, the model is sawn in two at the point of fracture, and the two parts joined together again at their proper level; if there is longitudinal separation as well as vertical displacement, the divided ends of the model, before they are rejoined, are pared down, and the two portions are brought into true position by articulating the teeth on them with their antagonist teeth of the other jaw, of which a model has also been taken. If there be anything like a full complement of teeth in the jaws, the rectification of displacement can be carried out with great accuracy.*

Having in view the principle of the ligature, Mütter, of Philadelphia, devised a clamp which consisted of a plate of silver folded snugly over the tops and sides of two or more teeth adjacent to the fracture. Nicole, of Nuremburg, employed for the same purpose a couple of steel plates fitted accurately along the anterior and posterior dental curvatures, secured in place by a steel clasp with a thumbscrew, in order the more effectually to attain lateral pressure; and Malgaigne still further extended this idea by substituting for the two steel plates one of flexible iron. From the two extremities of this plate, and from two other intermediate points, four small steel shafts arise perpendicularly, cross the crowns of the teeth at right angles, and then fall down again perpendicularly upon the anterior dental arcade. Each shaft being furnished with a thumbscrew, the iron plate can be made to bear against the teeth so as to form a posterior dental splint. With the exception of Mütter's, these splints are liable to become disarranged, while the thumbscrews by their pressure and friction are liable to injure the mucous membrane of the mouth.

Mr. Tomes's modification of Mütter's clamp consists in making the silver cap fit accurately to the teeth for some distance on each side of the fracture; the cap is then lined with gutta percha, which, being warmed when the apparatus is applied, fills up the interstices and fixes the cap.

Interdental splints have been recommended from an early period, and still continue to be used; they have been constructed generally of cork or ivory, wedge-shaped and grooved for the reception of the teeth; in this form they are objectionable on account of their liability to displacement and injuring the soft tissues of the cheek. Hamilton, however, employs wedge-shape pieces of gutta percha, placing them in position while hot and moulding them to the teeth; these keep in position extremely well and do not irritate the mouth. Mr. Barrett, of the London Hospital, uses metal and vulcanite interdental splints secured by small screws passing between the necks of the teeth, and has obtained very satisfactory results; one of his cases was in a child, and the delicate temporary teeth suffered no damage from the screws.

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* I am indebted to Mr. Moon for this method.

A more extensive splint is that employed by Mr. Gunning, of New York. It is also made of vulcanite and encloses all the teeth and part of the gum of the lower jaw; when the jaws are closed it merely rests against the upper teeth, except in cases of obstinate vertical displacement where it encloses them. There is an opening in front for food, and a channel for the saliva from the parotid gland. Mr. Gunning has applied it either with or without screws passing between the teeth, and in cases where there are no teeth in either jaw, has kept it in position by means of wings, the ends of which are imbedded in the splint. They are made of steel, and attached by tapes to a cap. For an accurate description of this splint, I must refer you to Mr. Heath's book on 'Injuries and Diseases of the Jaw,' where the illustration will convey the idea better than anything I can say. Mr. Bean, of Georgia, has devised a vulcanite splint very similar to that last mentioned, but with a mental compress composed of a piece of light wood four and a half inches long, and an inch and a half in width at the middle, tapering towards the ends, which are rounded. It has a strap passing over the top of the head, kept in position by frontal and occipital stays. It has the advantage of relieving the parts from the lateral pressure produced by the four-tailed bandage or the double cross roller bandage, generally applied to these cases.

Recently an officer on the staff of this institution, Mr. Henry Moon, has used successfully an interdental splint, of which the following is a description. A dental alloy cap should be fitted to the amended model, accurately adapted to all irregularities of the teeth, and passing for a quarter of an inch or so over the gum on the inner surface, and rather more on the outer; the number of teeth to be included in the splint would depend on the nature of the displacement; if it is simply vertical and not very difficult of reduction, the capping of two teeth on either side of the fracture will suffice, but if the fracture is oblique, some force may be required to keep the fragments from over-riding each other, and in such a case it may be desirable to extend the splint from the symphysis to the last molar; of course where the injury is multiple it should be carried round to include all the fractures. The metal cap should be strong enough to be quite unyielding, and its edges should be smoothly rounded. To retain the splint in position, the masticatory surface of the metal cap having first been brought to a level by soldering on metal where required, a vulcanite wedge-shaped cap is made to fit the upper teeth, which corresponds to those capped below. The vulcanite should fit over the gum on the buccal surface, and on the lingual side should be fitted to the palate. In applying it the metal splint is firmly held down so as to keep the fracture in position, and then the vulcanite wedge is introduced, and by being filed, if necessary, is made to exert an even bearing on the upper surface of the metal splint. A thickness of vulcanite is left sufficient to keep the mouth open just wide enough to admit of the introduction of food. A four-tailed or Hamilton's bandage is then applied.

In cases where the jaw is fractured on both sides, the vulcanite wedges should be made to cap the back teeth on both sides, and be united by vulcanite passing round behind the front teeth, thus leaving room for the introduction of food in the front of the mouth. When union has taken place, the vulcanite wedges may be dispensed with, and the metal cap kept in its place a few weeks longer by means of wires. This requires that holes, or rather slits, should be made at the level of the necks of the teeth that are to be used as fixing points: it is only from the canine back that we are sure of finding the triangular space between the necks of the teeth large enough for our purpose, which is encircling the tooth, together with the portions of plate at its point and back, with a strong piece of binding wire; this method does not cause irritation of the gum, or tend to loosen or displace the teeth.

The attempt to secure the fragments by means of a combination of these caps or clamps with outside splints was made by Chopart and Dessault as early as 1780. They devised "bandages composed of crotchets of iron or of steel, placed over the teeth, upon the alveolar margin, covered with cork or with plates of lead, and fastened by thumbscrews to a plate of sheet-iron, or some other material under the jaw." The instrument now known as Berkeley Hill's modification of Lonsdale's splint was first suggested in 1799 by a German surgeon named Rutenick, since then it has been variously modified by Kluge, Houzelot, Jousset, Malgaigne, and others until it reached its present form.

The principle of the apparatus is as follows: an ivory cap is fitted over the teeth and kept in position by a rod, bifurcated and curved over the lips, attached by a screw to a horseshoe splint underneath the jaw; the splint being kept in position by a band passing round the back of the neck. Mr. Moon has made a still further modification which is readily adapted to a jaw of any size, will exert any amount of pressure over the back teeth, leaves the front of the mouth free for feeding, &c., and being introduced separately from the cap, it is easily reapplied, and can be readily removed when desired without shifting the plate, which latter can be left *in sitú,* fastened in with wire as I have described. The manner of using this apparatus will be best understood by reference to the diagram I pass round, taken from Mr. Moon's paper on the subject.

I have now briefly sketched for you the chief methods employed for keeping the fragments in apposition, and in conclusion, as far as I can see, there is no one method of treatment applicable to all cases; the concomitant circumstances of a particular case must always guide us, as intelligent practitioners, in our selection of a retentive apparatus; and in making this selection it is well to remember that the best results are often obtained by the simplest means.

An animated discussion ensued in which Messrs. Birt, Carter, Hepburn, and Underwood took part.

Mr. Baker having replied, and a cordial vote of thanks having been accorded to him for his paper, the meeting terminated.

ODONTO-CHIRURGICAL SOCIETY.

This Society opens its Session on Monday, 13th March, with a paper by Mr. Campbell, L.D.S. (Dundee), "On the Preparation of the Mouth for Artificial Dentures."

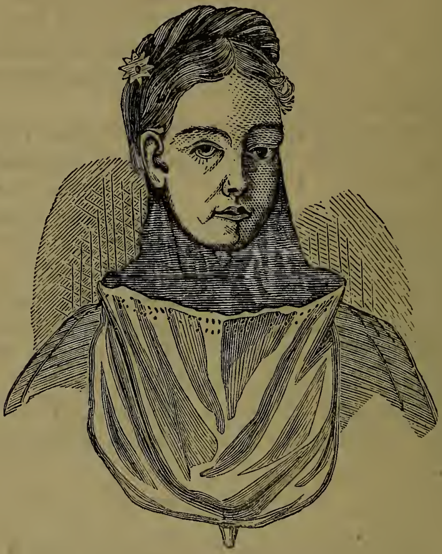
The Annual Dinner of the Members of the Society, and L.D.S. will take place on the same evening at the Douglas Hotel, Edinburgh, with Mr. D. Hepburn, L.D.S., in the chair, Mr. Williamson, L.D.S., croupier.

Miscellanea.

THE SALIVA BAG.

By Francis John Vanderpant, Esq.

The object of this arrangement is to obviate a very great drawback in the use of the rubber dam. It consists of a bag or pocket placed in front of the chest, the back of which fits closely to the sides of the head; the front of the bag terminates on a level with the chin, and is fixed to a piece of flexible wire which can be bent as desired, thereby opening or closing the mouth of apparatus at pleasure. About three inches from the upper orifice is a perforated box nickel-plated, containing sponge for aromatic vinegar or disinfectant. At the lower extremity of the bag is fitted a glass tube with plug, to which may be added flexible tubing leading to spittoon or receiver in the case of protracted operations or when the syringe is much used. The tube will also facilitate the cleansing of the apparatus, as by removing the plug a free current of water may be passed through it.



The mouth-bag is covered with a material of pleasing pattern, which blending with the dress of the patient tends to remove any feeling of disgust or nausea, which the object of it might otherwise give rise to.

CONVERSAZIONE OF THE PRESIDENT OF THE ODONTOLOGICAL SOCIETY.

On Friday, February 4th, 1876, Mr. Charles Vasey, the new President of the Odontological Society, entertained a numerous company at his residence, 5, Cavendish Square.

We cannot speak too warmly of the excellent arrangements and consequent order that prevailed; and it was almost a marvel how so numerous an assembly found such easy and pleasant accommodation within the limits of a private house, spacious though this one was. It will be seen from our necessarily imperfect list that the guests were gathered from far and near; and Mr. Vasey's pleasant conception, that one of the objects of the Society being the promotion of pleasant intercourse between the members, it was his desire to commence his reign with an endeavour to further that object, was, we should think, amply realised.

The large lower room was handsomely and conveniently laid out for refreshments; and though the guests seemed to spare neither champagne nor chicken, their chief occupation appeared to be conversation even there, whilst upstairs in another large room the strains of some of the band of the 1st Life Guards mingled with the animated voices of the visitors, eagerly discussing some of the exciting Dental topics of the day. Two smaller back rooms were devoted to microscopes provided by Messrs. Smith and Beck, kindly superintended by Messrs. T. Charters White and L. B. Pillin, whilst a goodly collection of photographs and stereoscopes served to entertain those who were tired of conversation. Altogether we have rarely spent a more enjoyable evening; and the expressions of pleasure which were heard on all sides must have afforded satisfaction to the indefatigable host. In so numerous an assembly it was impossible to obtain the names of all present, but among others we observed Messrs.

F. C. Allen (Maidstone).
Duncan Amoore (Hastings).
E. Apperly (Stroud).
J. H. Atkinson (Leeds).
S. Amos-Kirby (Bedford).
G. H. Bailey.
Charles Baly.
W. Barker.
E. Bartlett.
— Bayles.
W. G. Bennett.
— Bodecker.
E. E. Brand (Exeter).
F. G. Bridgman.
C. H. Bromley (Southampton).
J. H. Brown (Brighton).
J. S. Browne-Mason (Exeter).
— Bryant (Derby).
A. G. Canton.
F. Canton.
H. Campion (Manchester).
S. H. Cartwright.
— Childs.
J. S. Cholefield (Huddersfield).
J. T. Clover.
Alfred Coleman.
Oakley Coles.
— Cooper.
Augustus Cronin.
J. Dennant (Brighton).
M. D. Dickinson (St. Leonard's-on-Sea).
Thomas Edgelow.
John W. Elliott.
John Evans.
J. Fairbank.
George W. Field.
S. L. Finzi.
John B. Fletcher.
Alex. Fothergill (Darlington).
Charles James Fox.
W. F. Forsyth.
Thomas Gaddes.
C. Gaine (Bath).
John A. Gartley.
Ashley Gibbings.
H. B. Gill.
John Saxty Good.
George Gregson.
W. T. Halford.

M. W. Halliday.
Thomas Hankins.
T. H. G. Harding.
W. E. Harding (Shrewsbury).
R. E. Harrison.
Richard Harrison.
J. H. Hatfield.
Alfred G. Hayman (Clifton).
H. H. Hayward.
R. Helfrich.
G. Henry (Hastings).
W. F. Henry.
David Hepburn.
R. Hepburn.
Alfred Hill.
Warwick Hele (Carlisle).
A. Hockley.
E. Holborow King.
John J. Holford.
Myers L. Holywell (St. Alban's).
Frank A. Huet (Manchester).
Samuel J. Hutchinson.
G. A. Ibbetson.
G. R. Keeling (Epsom).
H. T. Kirby (Leicester).
Dr. Lloyd.
H. B. Longhurst.
Dr. Lovejoy.
J. J. Lyons.
G. Makins (Walton-on-Thames).
Peter Matthews.
W. H. May.
A. G. Medwin (Blackheath).
E. B. Medwin.
James Merson.
F. W. Mitchell.
Henry Moon.
J. W. Morgan.
W. J. Moore (Plymouth).
H. B. Muir.
W. Muridge.
Dr. Murie.
H. Mummery.
J. Mummery.
C. G. Nightingale (Shrewsbury).
Stephen Noble.
John O'Duffy (Dublin).
H. J. Ollive.
Fred. O'Swin.
G. Parkinson.
George T. Parkinson (Bath).
James Parkinson.
J. Parks.
G. W. Payne.
Frank Petty (Reading).
L. B. Pillin.
A. Pitowsky (Barnstaple).
W. G. Rauger.
R. Ransom.
A. Percy Reboul.
Smith Richards.
E. J. Richardson (Manchester).
J. L. Ritson (Penge).
W. A. Roberts (Edinburgh).
Charles D. Roberts (Ramsgate).
J. Robertson (Rochester).
Thomas Arnold Rogers.
S. Lee Rymer (Croydon).
S. J. A. Salter.
Edwin Saunders.
Henry Sewill.
S. J. Silvester (Croydon).
Charles Sims (Birmingham).
F. A. Smith.
Joseph Steele (Croydon).
James Stocken.
A. J. Swansea.
G. Sylvester (Worcester).
— Tod.
N. Tracy (Ipswich).
Thomas Underwood.
T. F. K. Underwood.
F. J. Vanderpant (Kingston-on-Thames).
J. E. Virgin (Oxford).
A. Baxter Visick.
H. D. Waldek (Graaff Reinet).
George Wallin.
George Weaver.
R. M. Webster.
Felix Weiss.
Charles West.
J. H. Whatford.
Charles E. White.
R. White (Norwich).
G. Williams.
James Williams (Walsall).
W. C. Williams (Leamington).
J. Willkie.
Augustus Winterbottom.
W. R. Wood (Brighton).
W. J. Woodman.
Sidney Wormald (Stockport).

DENTAL HOSPITAL OF LONDON ANNUAL DINNER.

THE success that has attended this dinner upon the last two occasions, and the fact that but for the prompt action of a few gentlemen it would not have been held last year, induced them to consider what measures might be adopted to provide for the annual continuance of an event which affords so excellent an opportunity for a general reunion.

The Committee of last year felt that although they were self-constituted, the fact that their invitation had been accepted gave them a certain *locus standi*, and before dissolving resolved upon inviting the following gentlemen to carry out the idea of an Annual Dinner:

John Tomes, Esq., F.R.S. Edwin Saunders, Esq. James Parkinson, Esq.	For London.
G. Buchanan, Esq., of Glasgow. J. E. Palmer, Esq., of Peterborough. J. O'Duffy, Esq., of Dublin.	Provincial Representatives of the three Kingdoms.

And the following office-bearers for the time being:

The Chairman of the Committee of Management of the Dental Hospital.—Campbell de Morgan, Esq., F.R.S.
The Hon. Sec. to the Dental Hospital.—G. A. Ibbetson, Esq.
The Dean of the School.—T. A. Rogers, Esq.
The President of the Odontological Society.—C. Vasey, Esq.
The Senior Officer of the Medical Staff of the Hospital.—Thomas Underwood, Esq.
The Chairman of last year's Dinner Committee.—C. J. Fox, Esq.

These gentlemen having consented, resolved upon adding to their number the following gentlemen as representing a younger generation of Dentists, upon whom would ultimately devolve the duty of perpetuating this pleasant gathering, which we believe to be productive of so much good:

C. S. Tomes, Esq.
Ashley Gibbings, Esq.
W. F. Forsyth, Esq.
David Hepburn, Esq.
James Merson, Esq.
Frederick Canton, Esq.
G. Parkinson, Esq.

This united committee have elected Mr. James Parkinson as their Chairman and Messrs. J. Merson and G. Parkinson as Hon. Secretaries.

It has been determined to hold the dinner at St. James's Hall on March 16th, 1876, at 6.30 o'clock. Tickets to be one guinea each, steward's fee five shillings.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

We are pleased to be able to announce that, adopting the suggestion made in our leading article for April, 1875, the Council of the Society have determined that on Wednesday, March 15th, 1876, an additional ordinary meeting of the Society will be held for the convenience of members who come from a distance to attend the annual dinner of the Dental Hospital of London of the 16th instant, when, in addition to casual communications, a paper will be read by Mr. C. S. Tomes, M.B. Oxon.

LIVEROOL DENTAL HOSITAL.

We publish with much pleasure the following letter from Mr. Trimmer, the Secretary of the Royal College of Surgeons, to David Campbell, Esq., Hon. Treasurer to the Liverpool Dental Hospital, and wish the young hospital every success in its new career as a provincial school of practical Dental Surgery. We have always maintained, and believe the event will prove we are right, that such provincial schools, far from causing a decrease in the number of students attending the Dental Hospital of London, will rather tend to feed it with fresh students, eager after greater advantages than they can find at the provincial school where their taste for knowledge was first awakened.

Royal College of Surgeons of England,
Lincoln's Inn Fields, W.C.;
February 18th, 1876.

Sir,—In reference to your letter of the 20th day of December last, reminding the application for the recognition by this College of the Liverpool Dental Hospital, I am desirous to communicate to you the following resolution adopted by the Council of this College on the 17th instance, viz.:

"That, as recommended by the Dental Board, certificates of attendance on the practice of the Dental Hospital, Russell Street, Liverpool, be recognised as qualifying for the Diploma in Dental Surgery of the College, not less than three Dental Surgeons having been appointed to that institution holding the qualifications hitherto judged necessary by the Council."

I am at the same time directed to forward to you a copy of the following resolution adopted at the same meeting of the Council, viz.:

"That, as recommended by the Dental Board, the certificates of surgeons in Dental Hospitals be not recognised by this College unless such surgeons who may in future be appointed to such hospitals do, in addition to any other qualification they may possess, hold the Diploma in Dental Surgery of this College.

I am, Sir,
Your obedient servant,
(Signed) Edward Trimmer.

To David Campbell, Esq.

political action meant "working and holding one's tongue unless one had wisdom to impart. Make *res non verba* rather than *verba non res* your motto," said my friend, "and if political action is interpreted by some to mean crying out in a futile, puerile, and wholly impossible manner for protective acts of Parliament, in Heaven's name eschew it. You can only stultify yourself and your profession by any other course." I give you, sir, these expressions emanating from my respected aged friend for what they are worth, and beg to subscribe myself

Yours faithfully,
ANTI-CANT.

AN EXPLANATION.

To the Editor of the 'British Journal of Dental Science.'

DEAR SIR,—It has been pointed out to me by Mr. Sewill that there are inaccuracies in the letter which I wrote to the Editor of the 'Dental Cosmos,' reflecting upon the course which I conceived he had taken in using for the purpose of publication matters communicated to him for another purpose, which materially affect the merits of the question. The date given in the letter (viz. the summer) proves to be an error, Mr. Sewill's last letter asking for references bearing date January 19th, 1875, and as Mr. Sewill states that the intention of publishing a book was conceived by him subsequently to his having applied to me for information, the imputation of unfair intent falls to the ground, and I regret that it was ever made. Mr. Sewill on two occasions applied to me—on the first for general information upon the subject; on the second for references to printed works. Of course the information given was such as he could have obtained for himself by search elsewhere, and I by no means at any time intended to imply that he had made use of any unpublished material whatever or of any researches of my own, his paper being based upon the published reasearches of French authors. The misconception under which my hastily written and too strongly worded note was penned arose from my having entertained a false impression as to the date.

Yours faithfully,
CHARLES S. TOMES.

THE DENTAL HOSPITAL.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In the Hospital is a notice that "The Dental Hospital is intended to afford relief to the suffering poor, and to them only."

The writer met on the stairs one morning last month a "young lady patient" with a real seal-skin jacket, and in the operating room seven out of the nine "lady patients" had kid gloves on that never cost less than three shillings and sixpence a pair.

If this is not an abuse of charity and neglect of the welfare of middle-class Dental practitioners, whose co-operation is asked for in the Dental diploma question—what is?

I am, &c.,
CONTEMPLOR.

THE SAUNDERS SCHOLARSHIP FUND.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Mr. Hugo, of Guernsey, writes to state that his initials are S. G. J. instead of S. J. I., as I described them in your last issue.

I am, &c.,
G. A. IBBETSON.

ERRATUM.

IN the report of the December, 1875, meeting of the Odontological Society, p. 61, 5th line from the bottom, for "capping" read "tapping."

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.

ANSWERS TO CORRESPONDENTS.

V. S.—We quite agree with your machine; it is certainly more useful than any other we have seen.

INQUIRER.—The Annual Dental Dinner takes place at the St. James's Hall, Regent Street, on Thursday, March 16th, at 6.30 p.m.

A. G. H.—Your name and Mr. H.'s have been added to the promised list. Many thanks.

J. H.—Official receipt will be forwarded in due course.

PORTANTI.—We cannot tell if the individual is a Licentiate or not. You should write to Mr. Trimmer, Sec. to the Royal College of Surgeons.

X. Y. Z.—Shall be attended to next month.

BOOKS RECEIVED.

'Introductory Lecture to the Winter Course of the Philadelphia Dental College.' Delivered by J. H. McQuillen, M.D., D.D.S.
'Surgery of the Arteries.' Maunder.
'Dental Anatomy and Surgery.' By Henry E. Sewill.
'Le Progrès Médical.'
'The Doctor.'
'The Medical Press and Circular.'
'The Dental Register.'
'Deutsche Vierteljahrsschrift für Zahnheilkunde.'
'Dental Cosmos.'
'The Pennsylvania Journal of Dental Science.'
'The Birmingham Daily Post.'

NOTICE.—We much regret that, owing to the very great pressure on our space, a number of articles, which are all in type, have been, one after another, crowded out, but will appear in our next issue.

British Journal of Dental Science.

No. 238. LONDON, APRIL, 1876. Vol. XIX.

Dental Surgery and Medicine.

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 125.)

IV. *Hereditary Transmission of other forms of Disease in Teeth.*—Before concluding the relation of hereditary peculiarities, whether they be in shape, or in the position, or the transmission of diseases of the teeth, I must record some particulars of a case that came under my notice a short time ago, and where we had, what I must, not having a better term, call death of a tooth, in both mother and daughter under very similar circumstances.

Mrs. T—, æt. about 26, consulted me to see whether any explanation could be given as to the cause, or any treatment suggested for a severe pain that came in sudden paroxysms and extended from the mental foramen on the right to the symphysis. All the inferior incisors looked perfectly healthy; one central was a little turned round and somewhat higher than the rest, and this was pointed out as the cause of pain although it was not sensitive upon pressure. The lady had continued to suffer severely at intervals for over two years, and had been prescribed for by her usual medical attendant, but without any beneficial results, who attributed her sufferings to neuralgia of the inferior dental nerve, but could not assign any cause for the irritation. Immediately before seeing me an attack rather sharper than usual had just been passed through, she therefore was advised to see a Dentist. Upon examining the mouth some slight indication of inflammation was perceptible round the neck of the inferior incisor referred to, but nothing of a character to call for special notice, unless attention had been called to it. In the first instance I directed that a lotion of tannic acid and glycerine should be used as a wash for the mouth, and five grains of chlorate of potass be taken three times a day.

After persevering in this treatment for six weeks with but very slight benefit, another attack of even greater intensity followed, and the tooth for the first time appeared to be slightly discoloured, but there was still no pain upon pressure, or any discharge or other sign of abscess. The patient determined, however, to have the tooth extracted, for she appeared to be quite worn out with these repeated attacks, although the loss was a very serious one, as all the other teeth were perfect, and this tooth looked well; she had, however, resolved that she would not retain it one moment longer. The tooth was therefore extracted, but there proved to be no thickening of the periosteum, nor was there the smallest trace of caries, but the fang was somewhat absorbed and its termination rugged, sharp pointed, and denuded of periosteum. From the day that the tooth was extracted all her neuralgic pains ceased, and she has not had any similar attack since. I may here remark that this lady's mouth presented rather a remarkable appearance. She had no bicuspids, their place being occupied by the temporary molars, which looked perfectly healthy, were a very good colour, and firmly set. She belonged to a family none of whom had any wisdom teeth, neither the mother, aged about 55, nor any of the daughters, respectively aged 23, 26, and 30.

Upon the mother visiting me I was struck by noticing this interesting fact, that the same tooth the daughter had been obliged to have extracted, namely, the right inferior central incisor, was in the mother's case much discoloured and evidently in a state of necrosis. I have frequently seen this lady since. The tooth is at this moment in her head, but it is quite blue coloured and conspicuous when contrasted with the neighbouring teeth. I asked whether she could remember ever having suffered in a similar manner to her daughter, but she was unable distinctly to recollect. As a girl she had many attacks of neuralgia, but of late she had been tolerably free. The tooth she said had certainly been in the same discoloured state for twenty years. When I first saw the daughter I attributed the state of her mouth to some injury done to the incisor by a blow, and this impression was strengthened, when after extraction I saw the peculiar condition of the fang; but may we not infer that the state of the mother's mouth during gestation may have transmitted this hereditary blemish to the child, a weakness which more particularly exhibited itself when she was in a similar condition?

The interrupted development of teeth resulting in that appearance of enamel to which the name of pitted or honeycombed has been applied is usually ascribed to attacks of illness at those periods of life when the teeth were in a state of formation. Instead of the enamel presenting a smooth surface, we have a number of lines frequently running into pits, where the external covering is not only defective but the dentine also. These lines may be several in number, or confined to one deeply honeycombed indentation, and according to the progression in the development of each individual tooth the situation of the lines will be apparent. I am acquainted with a lady who declares she can fix the precise dates at which one of her sons had three severe illnesses, and these illnesses were indicated by three transverse grooves the results of imperfect organization at the time of these several attacks. After examining this boy's teeth my first impulse was to look at the mother's mouth, and there I perceived the same character of tooth with the three transverse grooves similarly marked. The lady had been according to her statement a perfectly healthy child, and was not aware that she had any illness in her infancy, but I can point to a dozen cases where both parent and child have the same pitted teeth. I can refer to one family in which four of the children have the same character of teeth, and they are similar to one of the parents. Are we to infer that both father and son or mother and daughter had attacks of illness in their infancy, and that these several illnesses left these results? That the honeycombed appearance of the enamel may be due and frequently is due to some constitutional derangement I cannot dispute, but we have children who have been perfectly healthy from their infancy presenting these blemishes, and exhibiting them of a precisely similar pattern to the parent, and I think they may be regarded as hereditary imperfections. 17

18

Mrs. T— and Miss H— are sisters, but neither in face nor in stature do they at all resemble each other. The one has two centrals standing in the upper jaw, the other two centrals and a canine; all the other teeth of the superior maxilla have either been extracted or have fallen out, yet the models of the mouth so resemble each other, without the extra tooth it would be impossible ~~the~~ know the one from the other. to/

(*To be continued.*)

Indent paragraph

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, L.D.S., Plymouth.

(*Continued from p.* 132.)

On Regulation Plates (*continued*).

When all the six upper front teeth close within the lowers, making what is called an underhung mouth, we may under favorable circumstances attempt to reduce them to their proper relative positions.

Mr. Tomes recommends pushing out only two teeth at a time, keeping these stationary whilst the next two are being acted upon, and so on. But he does not suggest the means for doing this, and in my experience it is inconvenient. Supposing two hickory pegs are substituted for the blocks of compressed wood which have pressed out the two centrals, in order to maintain these in place, whilst similar blocks behind the laterals push them out in turn. So soon as these blocks begin to swell and push upon the laterals, the plate will be a little raised, however tightly it has been tied in, the hickory pegs will be withdrawn from the centrals, which will immediately commence a retrograde march.

On the other hand, if we attempt to press out all six teeth at once, depending for our resistance on ligatures to the first or second bicuspids, these teeth will be greatly elongated by the accumulated strain of six blocks of wood swelling at once, whilst the first molar is so far from the teeth to be acted upon that a great deal of power will be lost, if it is used for attachment, from that *giving way* which the elasticity of plate and ligature always manifest under strain.

These difficulties were met in the mouth of Miss M— in the following manner:—The young lady had been wearing a plate capping the lower teeth, and bringing an inclined plane over the lower front teeth so as to bite within the upper, for about a year, when she came into the hands of my partner Mr. Coles and myself. This method was therefore negatived, and it was determined to attempt pushing out all six front teeth at once.

A plate was made capping all the back teeth, and thickened behind the crowns of the front teeth where chambers for compressed wood were cut; and in order to utilise the closing pressure of the mouth, the edge of the plate was continued beyond these chambers downwards and outwards so as to make an inclined plane for the lower front teeth to bite within and against. (See fig. 9: a drawing of section through upper and lower incisors, the plate being in place. *a,* vulcanite plate; *b,* block of compressed wood; *d,* upper incisor; *c,* lower incisor.)

The plate was tied to the anterior bicuspid on each side; but to give a grip to the plate so as to reinforce the holding power of the ligatures, the wedge-shaped interspaces between the back teeth were deepened on the model before the plate was made, taking care to keep the sides of the cuts perfectly perpendicular.

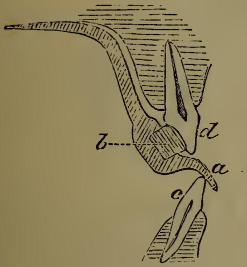


FIG. 9.

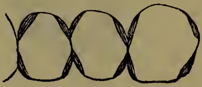


FIG. 10.

Fig. 10 is a horizontal section of these teeth on one side of the model, the shaded parts being supposed to be what was cut away, but rather exaggerated to give a clear idea of what is meant. By this means a very firm grip was given to the plate which, although it was lost after the third removal, started the teeth well and enabled the case to be successfully completed in about five weeks.

When an incisor above or below is crowded outside the range of the teeth, it can be brought in, and the adjacent teeth pressed aside to make way for it, very advantageously, by a straight piece of elastic interlacing them. A plate must be made which may cap the back teeth and come across the mouth behind the tooth to be operated on, leaving room for its inward progress. Holes are drilled as near the proximal edge as is convenient, about half an inch on each side of the offender.

Take an elastic ring, such as can be purchased at any stationer's, about a quarter of an inch in width, and as thick as a shilling. Cut a piece from this of such a length that when its ends are tied at the holes previously drilled it will lie a little stretched between its attachments. The plate is now tied in the mouth to any convenient teeth, the elastic lying across the gap behind the prominent tooth. With a blunt instrument draw it through this gap, and slip the loop thus formed over its crown. Should there be any tendency to slip off it can be tied by a thread embracing crown and elastic diagonally.

Fig 11 shows a bird's-eye view of such an arrangement for the lower jaw. *a*, central incisor; *b*, strip of elastic rubber fastened to the frame at *c c*.

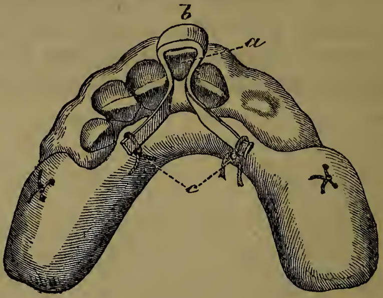


Fig. 11.

It is exceedingly easy to make a vulcaninite plate fitting the crowns of all the teeth as accurately as the impression, by Mr. Williams's method of packing the rubber directly on the model. This offers us therefore a very satisfactory means of ensuring the stability of whatever changes have been made in the mouth. A plate should be made of an even layer of vulcanite, capping all the teeth to the edge of the gums on the outside, a little deeper than this on the inside if in the lower jaw, and covering the palate if in the upper jaw. This plate can be removed and cleaned by the patient, who may be directed to wear it at night only, for six months; after which time trying it in weekly for a short time, to see if any retrogression takes place.

When a tooth has been rotated by the forceps it is sometimes necessary, and always satisfactory, to ensure its permanence in its new position by means of such a plate, capping it and the adjacent teeth.

As an illustration I will give the case of Master H—, who had an upper lateral with its cutting edge at right angles to its proper position. This was complicated by an abnormally developed lingual cusp indicating a flattened fang, which made the success of any interference doubtful; but as in its then condition it was very disfiguring it was concluded to make the attempt and risk the loss of the tooth. It was first extracted, and a good deal of the lingual side of the fang filed away, so as to reduce its shape to a more nearly cylindrical one, care being taken not to interfere with the membrane covering the end of the root.

When the tooth was replaced in the mouth a slight touch would have slipped it back into its former position. Therefore an impression was taken in "extra soft" Godiva composition in order to make a vulcanite cap. And whilst this was preparing a gutta-percha splint was worn.

It took three hours to get the vulcanite piece ready; but I think in a case of emergency, with the new quick-cooking rubber, it might be done in less than half the time.

In spite of the rough treatment which the tooth received, it adhered by first intention without the slightest bad symptom.

(*To be continued.*)

Hospital Reports and Case-Book.

BIRMINGHAM DENTAL HOSPITAL.

The seventeenth annual meeting of the governors and friends of the Birmingham Dental Hospital was held on February 23rd, 1876, at the institution, Broad Street. The Mayor (Alderman Chamberlain) presided; and amongst those present were Dr. Sawyer, Messrs. C. C. Smith, Fowler, Sutton, C. Sims, Maberley, Neal, Gilbert Smith, and G. T. Smith (hon. sec.).

The committee's report stated that the institution was steadily increasing in the amount of relief afforded to the poor of the town. In proportion to the large measure of support that had been given to it by the public generally its beneficial influence had been more widely felt, and it was hoped that continued support would be received from the public. During the past ten years the attendance of patients had doubled, and, as a natural consequence, the operations performed had increased in the same proportion. This would necessitate some considerable alteration in the operating rooms, whereby an additional expense would be created. After expressing the thanks of the committee to numerous gentlemen who had rendered support to the institution, the report continued, that the financial statement for the two years ending December 1875, showed a balance against the hospital of £3 4s. 9½d., without including some accounts unpaid. To pay these off and to meet current liabilities would require considerable exertions on the part of every one connected with the institution.

The surgical report stated the returns would be for the two years—1874-5—as no meeting was held last year. An additional room being urgently needed, an appeal was made for funds to properly furnish this room, and provide it with instruments. The Medical Committee had seriously considered whether they should not elect one or more Assistant Dental Surgeons, as they felt such a step quite necessary to meet the extra demand on the services of the Dental officers. The number of patients admitted, from January, 1874, to January, 1876, was—males 2974, and females 4062, total 7036. Number of operations performed:—Extractions, 8008; stopping, 1005; scaling, 247; miscellaneous, 792; total, 10,052.

On the motion of the Chairman, the reports and statement of accounts were adopted, and votes of thanks were passed to the president, Lord Leigh, the vice-president, the Bishop of Worcester; the treasurer, auditor, secretary, consulting officers, surgeons, chloroformist, and Dental officers, all being re-elected.

Mr. C. C. SMITH then moved a vote of thanks to the Mayor, for presiding.

This was seconded by Mr. C. SIMS, who remarked that the committee were considering the advisability of obtaining the acknowledgment of the institution by the Royal College of Surgeons.

The MAYOR, in acknowledging the compliment, said in reference to remarks which had been made as to the paucity of support given to the charity, it must be understood that that might arise, not from any doubt on the part of the public as to the usefulness of the institution, or the amount of suffering it relieved, but from a doubt, which he thought was well grounded, as to the necessity for the multiplication of small charities. The institution had to look that prejudice in the face, and to explain to the public the reasons which justified the continued existence of the charity. No sensible man desired to see the multiplication of expense for advertisements, collections, and rent, which was altogether out of proportion to the subscription lists of small charities, and there must always be some good and strong reasons to put against these objections before charities of that kind were likely to receive any large measure of support. He saw some reasons for the separate existence of that charity. If it was for the benefit of the middle classes and well-to-do people to go to a special doctor, he took it for granted that it must be for the good of the poor also. He had always felt that the poor who suffered from diseases of the teeth might be disinclined to run the risk of attending a great hospital and being delayed for hours, and would very much prefer to be treated by specially qualified persons in an institution set apart for the purpose. Still, whilst it was a justification, he felt bound to point out that charities of that kind had, from time to time, to put their defence upon record, and if the public could be persuaded of the necessity for the existence of the charity as a separate institution there would be no difficulty in getting any amount of support they required for the efficiency of the institution.

Mr. C. Sims remarked that there was no Dental surgeon at the General Hospital, as two or three years ago, when the matter was brought before the governors, they refused to make the appointment. It was necessary for them to keep up the institution, for the simple reason that there was only the Queen's Hospital where people could get relief at all.

The Mayor asked if there was no Dental officer at the present time at the General Hospital?

Mr. C. Sims said there was not. Cases were simply treated by students.

The Mayor replied that it was perfectly clear that operations should be performed under the superintendence of a qualified officer. If that was not done at the great charities it constituted sufficient reasons for the existence of that charity as a separate institution. The meeting then concluded. —*The Birmingham Daily Post.*

British Journal of Dental Science.

LONDON, APRIL, 1876.

The past month has been truly an eventful one in the history of Dental surgery; never before has there been such a numerous succession of scientific, social, and political gatherings, and a fair report of them has produced such a pressure on our space that, although we have added several extra pages to our present issue, we are compelled not only to postpone the publication of many interesting and valuable papers, with a host of correspondence on the topics of the day, but have actually no room left for more than a bare enumeration of the chief events, reserving for a future occasion any comment upon them.

The Odontological Society led the way with its ordinary monthly meeting, on Monday, March the 6th, when some incidents occurred in relation to the balloting for new members, which according to past custom and in deference to a long understanding with the council are not mentioned in our report of the meeting, but the inexperience and indiscretion of a young contemporary has made the matter public and compelled one of the chief actors in the incident in question, to notice the matter in our pages by way of explanation.

The Annual Meeting of the Dental Hospital of London, the report of which we are compelled to postpone, was followed the same evening by the Annual Dinner, which was a great success, and a resolution of the Dinner Committee to extend the privilege of admission to the students, will doubtless add to its popularity.

On the previous day a Special Meeting of the Odontological Society was held for the convenience of provincial visitors, in accordance with a suggestion we made in our leading article of last March. And the day after the dinner the first General Meeting of the Dental Reform Committee was held, when after we had thankfully resigned to its care the trust which was confided to us by the subscribers to the fund we had inaugurated, and by the Manchester Meeting of last August, the committee proceeded to the election of its officers and executive, and separated with a general feeling of satisfaction that it was at last successfully launched on its career.

In the north the Annual Meeting of the Odonto-Chirurgical Society was followed by the most successful of the Annual Dinners, which have been steadily kept up in commemoration of the Dental Diploma; the report reached us too late for this issue, but will appear in our next, together with that of the Student's Society.

It only remains for us to notice the formation of the Association of Legally Qualified Dental Surgeons, for some idea of which we must refer our readers to the correspondence at the end of this number. Seeing that it can only afford a council of three, it would seem to be as unsuccessful in commanding numbers as in commanding respect, or any character for consistency. However, it will do no harm as a sort of Mutual Admiration Society, the members of which may occasionally meet and exchange congratulations that they are not as other men.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Monthly Meeting, Monday, March 6th, 1876.

Charles Vasey, Esq., President, in the Chair.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were then balloted for and duly elected: Mr. Augustus Winterbottom, 16, Sloane Street; Mr. L. B. Pillin, Conduit Street; Mr. G. Wm. Payne, 34, Ebury Street; Mr. G. Wm. Field, 39, Upper Brook Street, Grosvenor Square; Mr. David Cormack, 77, Margaret Street, Cavendish Square; Mr. G. Hilditch Harding, Manchester; Mr. J. F. Corbett, 3, South Mall, Cork; Mr. Hugh Peterson, of Sydney, Australia.

The President announced a donation to the Library of 'The Student's Guide to Dental Anatomy and Surgery,' by Mr. Henry Sewill, presented by the author.

Mr. Spence Bate, of Plymouth, then read a paper "On the Necessity of the Exclusion of Air as well as Saliva from large Gold Fillings, and the best Means of obtaining these Results."

Mr. Underwood said that however strongly writers on the subject might express themselves, there could be no doubt that if operators spoke the honest truth, there were multitudes of cases where the stopping took place in the midst of fluids. Especially was that the case before the introduction of the rubber-dam. His experience was that with non-adhesive gold, moisture might be to a certain extent disregarded, but that moisture with adhesive gold interfered with its properties, and after a few years the plug became defective. The plan adopted in the Hospital for a long time had been to commence to plug with non-adhesive gold, and to work up and fill with adhesive gold; but in such cases it had not only been found absolutely necessary to exclude the saliva, but to use the rubber-dam to prevent even the moisture of the breath from coming in contact with the plug. He wished to know if he understood Mr. Bate to imply that he rather courted the presence of moisture with adhesive gold as well as with non-adhesive?

Mr. Sewill asked Mr. Bate if he considered Mr. Makin's view of the union of adhesive gold as correct, namely, that the cohesion of gold was a process of gold welding, exactly analogous to the welding of partly molten iron or other metals. Platinum, tin, and lead, he believed, would weld in a cold state. If the union of gold was of that character it appeared to him that theoretically the presence of moisture must be opposed to it. The experiments that had been made of late years showed that it was comparatively easy to make a moisture-tight plug with non-adhesive foil, but he never succeeded in obtaining cohesion of adhesive foil which had become moist. Even in a perfectly dry cavity it was extremely difficult.

The President said he had always thought too much stress was laid upon the necessity of keeping even the breath from adhesive stoppings. He had seen many large stoppings which had failed at one corner, and had rather considered that it was caused by a drawing together of the foil when being consolidated in the centre. All adhesive plugs had that tendency, and he was always careful as far as possible to work as it were from fixed points, fixing every piece of the adhesive stopping as he went along.

Mr. Turner said a short time ago Mr. Ashley Barrett read a paper in which he maintained that the gas which was driven through the apex of the foramen of the tooth canal was the cause of peridentitis and alveolar abscess. It must be very gratifying to him to hear the same view adopted by Mr. Spence Bate. From the cursory glance he had taken at stoppings, particularly the side of the incisor tooth which was built up, the gold seemed as solid as if made with adhesive gold; but he could not believe that the admission of moisture to adhesive gold stopping was a matter of small importance, for he had never yet been able to secure a good adhesive gold stopping if moisture got at the gold without having to begin that part as it were new. Mr. Bate had expressly stated that he did not succeed so well with spongy gold, which was the very highest kind of adhesive gold, as he did with non-adhesive gold. That seemed to show that the admission of moisture to adhesive gold was inimical to a good stopping. The moisture admitted in a general way was either breath or saliva, and the saliva was a very different thing from pure water from which air had been expelled by boiling.

Mr. Coleman said he was not very much surprised at that part of the paper which stated that water-tight fitting could be made with non-adhesive gold in the presence of moisture, because he believed that many of the fillings in former times were done without regard to the presence of fluids in the mouth. In using the amalgams, it was not at all uncommon to wash them before applying, and then to squeeze out the moisture. The cavity was generally kept dry, but in some cases this was impossible, and the moisture was probably squeezed out by the instrument, and in all likelihood the air also was squeezed out. He rather thought Mr. Bate had laid too much stress on the presence of air, because if the plug were solid throughout, a small portion of air would not be exposed to a very considerable amount of pressure. The difference of temperature before it was introduced into the mouth and afterwards probably averaged from 25° to 30°, and that would not be sufficient to expand the air very much so as to force the plug out. He was certainly surprised to hear that such good results could be obtained with adhesive gold, for it had always appeared to him a *sine qua non* in manipulating gold in that form, that moisture should not be present, and even the moisture of the breath would interfere with the operation.

Mr. Hutchinson asked Mr. Bate how he practically applied in the mouth the principles enunciated in the paper; how he secured the presence of a fluid similar to pure water; whether he applied the rubber-dam and drowned the tooth with boiled water, or put the gold into the cavity when it was filled with saliva; and whether he did not consider that a tooth which had been stopped with gold that had been soaked in water, the tooth also having been under water, could not be expected to take up the ink, seeing that it was already surrounded by a moist atmosphere.

Mr. Walker said that ten years ago Mr. Woodhouse spoke of having plugged with non-adhesive gold, dipping it into water, and he himself had made some fair specimen plugs in that way, but he could not see how water could be introduced into the mouth without becoming mixed with saliva; and so far as his experience went, one atom of saliva would interfere with the cohesion of the gold. Even the breath would separate one layer of gold from another.

Mr. Spence Bate, in reply, said Mr. Underwood acknowledged that if adhesive gold stoppings got slightly wet they could be made to last a few years, but it was rather puzzling that they should then break up. He could not understand why, if the water allowed them to unite at all, it should then cause them to fail. His own theory was that the failures were caused by the presence of a certain amount of air which acted as a continual pressure from within. Mr. Coleman considered that the 25° of increased temperature was a very small difference; but when that was kept up persistently for weeks the stoppings would break up. Mr. Sewill had asked a question with regard to the welding of gold. His own experiments had chiefly been with non-adhesive gold, but he had used some adhesive gold with it when he wanted to build up the surface. He had found, however, that by using serrated points and plugging carefully, he could build up with non-adhesive gold the same as with adhesive gold. In reply to Mr. Turner's allusion to the gas passing down through the alveolus, he had merely referred to that to show why he used glycerine. Some few years ago a gentleman sent him some crustaceous animals from Cape Horn. One of them, a crab, was beautifully flexible and soft as if fresh, and the only reason that could be assigned for it was that it had been put in glycerine for a day or two. He had since found that the glycerine seemed to toughen the tissue and allow it to be flexible. In treating teeth with it the pulp remained perfectly solid and firm, although not destroyed. Mr. Bate then described certain cases in which he had found that the application of glycerine proved very advantageous. With the spongy gold he could not build beyond the surface, but if welding meant two surfaces brought together by pressure, he had certainly done it with wet adhesive gold. Mr. Hutchinson had erred in supposing that the tooth and stopping were wet when exposed to the ink test. After it was filled, it was put aside for two or three days until it was perfectly dry, and was then placed in the ink. His method of operation was to get the saliva as much as possible out of the mouth first, not using the rubber-dam, because his experience was that patients were apt to pull it out. He placed the mouth in such a position that the saliva should run out; dammed the tooth round with cotton wool, and then plugged away, generally managing to get far advanced before the mouth was shut. It should be remembered that the viscid portion of the saliva would not mix with water. The watery portion that did mix contained the salts; but the presence of water, at all events, made it more dilute and more capable of being pressed out than it otherwise would be. His opinion was, that the presence of air tended to the decomposition of the tissues much more than the presence of moisture.

Votes of thanks were accorded to Mr. Spence Bate for his paper, and to Mr. Sewill for his donation to the Library.

At the next ordinary monthly meeting, April 3rd, Mr. Felix Weiss will read a paper "On the Retarded Eruption and the Extinction of Wisdom Teeth. Case of abscess with fistulæ from buried inferior dens sapientiæ lying horizontally below the alveolar margin."

For the convenience of many gentlemen in the country who had come up to London to attend the annual dinner of the Dental Hospital of London, an

ADDITIONAL ORDINARY MEETING WAS HELD MARCH 15, 1876.

CHARLES VASEY, Esq., President, in the Chair.

A communication was read from Dr. Jelly "On a Case of Symmetrical Pigmentary Deposit in all the Teeth of both Jaws."

The PRESIDENT said the appearance described was very unusual. He did not think it depended upon anything connected with the early development of the tooth, otherwise it would have been seen in different parts.

Mr. DE LESSERT exhibited two upper incisor teeth covered with a yellow pigment, taken from a patient all whose other teeth were similarly marked without any apparent cause.

Mr. SEWILL thought that the discoloration described by Dr. Jelly could hardly be called pigmentation. He did not know that pigmentation was ever found in the tissues of the teeth except the deposit of colouring matter in caries.

Mr. WHITE thought that the staining on the teeth exhibited was only on the surface of the enamel, and did not involve the dentine. Probably resulted from some staining agent.

Mr. CHARLES TOMES exhibited an abnormal tusk of an African elephant, which he had purchased for the museum. The abnormality, he said, appeared at first sight to have resulted from such an injury as was often inflicted on the tusks by natives, affecting the grey pulp; but he was inclined to believe that it was in reality due to some very early malformation.

Mr. CHARLESWORTH confirmed Mr. Tomes's view as to the origin of the abnormal condition. He then exhibited a tusk forming part of the large importation of Siberian ivory made about two years ago in consequence of the great rise in the price of living ivory. For hundreds of years, he said, the fossil ivory of Siberia had had a certain amount of value in the market, but no large importation took place until the one to which he referred. The finest tusks fetched a very high price, but when they were cut up they were found to be worth much less than they had realized, so that the experiment had not been repeated. The exact position of the tusks in the head of the mammoth was not known, and he was at a loss to conjecture of what use they were to the animal. Mr. Charlesworth then exhibited a number of specimens from the Suffolk diggings. He stated that between Woodbridge and Ipswich there was a belt of country known locally as the Crag, consisting of a bed of shell-sand varying from forty to fifty feet in thickness. This sand had long been used by the farmers to spread over the soil, and the heavy soils had been benefitted by it. A number of curious dark stones were found in the sand, and were formerly only used as road metal. In 1845 Professor Henslow suggested that they might be the fossil dung of sharks and other creatures inhabiting the sea, of which the Crag was the ancient bottom. The analysis of the stones showed that they contained 50 or 60 per cent. of phosphate of lime, and at Professor Henslow's suggestion they were ground, and on being spread over the land were found to have the effect of ordinary guano. There were now many millionaires in Suffolk who had made their fortunes entirely by converting these stones into manure. Although fossil shells and fishes teeth had been obtained from the Crag by naturalists for hundreds of years, it was only recently that the teeth of mastodous, rhinoceroses, hippopotami, deer, tapirs, and other land animals had been discovered. These were mineralised in a most beautiful way, quite unlike any of the fossil teeth from the ordinary Thames Valley gravels, or other deposits in which mammoth teeth were found. At the time when the Suffolk Crag formed the bed of the sea, the rivers carried down the carcases of land animals into the sea where their flesh was probably devoured by the sharks and other fishes. The bones had disappeared, but the teeth remained mineralised in a perfectly unique manner. The most remarkable tooth was that of the mastodon. When Hunter first saw it he said it must have belonged to a carniverous animal, because the crown bristled with pointed cones, but it was now known that the animal was no more a flesh eater than the elephant. The crown of the tooth was traversed by a series of prominent high ridges which gradually wore down until the surface became almost as flat as that of the molar of an elephant. In the tooth of the English mastodon the crown was divided into ridges between which were supplementary cones that sufficed to distinguish the English from the American variety. Besides the teeth of land animals, there were also the teeth of spermaceti whales and grampuses mineralised in the same manner. He had brought with him a case showing the teeth of the living spermaceti whale cut vertically and polished for comparison with the fossil ones. He also exhibited a copper bullet found lodged in the tusk of an elephant, and a number of sections of the teeth of the walrus. Mr. Charlesworth further stated in answer to the President that he did not know the exact circumstances under which the Siberian tusks were found. Some of them were undoubtedly found in the ice. Such was the position of the famous mammoth of Siberia, upon whose flesh when frozen the wolves and dogs fed. He imagined that a large number of the imported tusks were taken from the frozen soil, but those that were well preserved and of which the ivory was comparatively valuable, were probably taken from the ice.

Mr. Coleman referred to another specimen of a bullet in an elephant's tusk, and stated that there was in that case a fistulous opening communicating with the exterior of the tusk.

Mr. Charles S. Tomes then read a paper "On the Attachment of Teeth, and on the Nature of the Alveolo-Dental Membrane."

The President said that he had long felt in teaching, the want of a clear conception of the early development of the teeth. The development from the sac (as given by Goodsir), the enamel organ, and the papilla, always presented to his mind certain difficulties. According to previous accounts, when the tooth was erupted the sac and the enamel organ came to an end, whereas it was practically known that the enamel received a positive addition to its substance after the eruptive stage. He was glad to find that Mr. Tomes had given so clear a description of the early development of the teeth, for it was only by increased knowledge on that point that an advanced method of treatment could be expected.

Mr. Turner said he had listened with great pleasure to Mr. Tomes' paper, which was one of a very practical character. With regard to the relation of the alveolo-dental membrane to the nerve pulp, he wished to ask if Mr. Tomes had thought of the question in relation to replantation or treatment by torsion in cases of irregularity. If Mr. Tomes' theory was correct, there was some reason why that mode of treatment should succeed.

Mr. Coleman said, Mr. Tomes' definition was the clearest ever given of the origin and formation of the alveolo-dental membrane. Having paid some attention to the subject of transplantation and replantation (which he hoped before long to bring to the notice of the Society), he would suggest that there was a better chance of success in the case of the rupture of a single membrane than in the case of a separation of two membranes which must afterwards unite. Mr. Tomes' remarks were very valuable and deserved the best thanks of the Society.

Mr. Sewill said Mr. Tomes' researches entirely corroborated those of Legros and Magitot in regard to the development of the teeth; and it appeared to him that the accounts of that development were now as advanced as the accounts of the development of any other part of the human organism, and had arrived at a point at which very little additional knowledge could be expected for some time to come.

The PRESIDENT in bringing the proceedings to a close, said the members would agree with him that their best thanks were due to Mr. Tomes, and to the gentlemen who had offered casual communications, especially Mr. Charlesworth.

ANNUAL DINNER OF THE DENTAL HOSPITAL OF LONDON.*

HELD AT ST. JAMES'S HALL, MARCH 16, 1876.

W. SCOVELL SAVORY, Esq., F.R.S., in the Chair.

ABOUT 150 gentlemen, from all parts of England, Scotland, and Ireland, sat down to an excellent dinner, at the conclusion of which

The CHAIRMAN, on rising to propose the first toast, said:—Gentlemen, we will drink first of all, of course, to the health of the Queen and the Royal Family. I will only say that of all classes of her Majesty's subjects we, who are especially concerned in the work done at hospitals and are necessarily more familiar than some others with pain and suffering in their endless forms, that we especially should drink with enthusiasm to the Queen and Royal Family; for never before I will venture to say in this world's history has monarch so taken to heart the sorrows and trials of her people (cheers). She and the Prince and other of her children know, I should think, more about hospitals, what they are and what they do, than ever queen, or king, or prince before; and the future historian of England, in recording the glories of the reign of Victoria, can have no fairer tale to tell than this (cheers).

The CHAIRMAN.—Gentlemen, in proposing the toast of the evening I am assured of that which all speakers must covet, the entire sympathy of those whom I have the honour to address. When I name the Dental Hospital and its Medical School, and invite you to drink their continued and increasing prosperity, I am assured of an unanimous and hearty response. The establishment of a Dental Hospital and School is an accomplished fact; there is now no need to give reasons for their existence. They have long enough been obvious to all with eyes to see, and every year a fuller answer is given to the question in the good work done. Observe too, I pray you, this further fact, that the good done by the Hospital is by no means limited to those who work there, and to the poor who come to it for help. It tells to all the hospitals in England how such work as yours may and can be done, and if they remain insensible to the lessons it teaches, it will sooner or later shame them into better work. The time will come when, through your influence, they will not dare to have teeth drawn in a slovenly manner, or, indeed, to have them drawn at all if they can be saved for use (cheers). I do not care from this place to put forth any appeal which is based on selfish grounds, or I think it would be easy to show how all classes, even the highest, must be deeply interested in the progress of this as of all institutions whose aim is the relief of suffering or the increase of the comforts of life. Here are those advances made and those discoveries worked out, of the benefit of which there must be very few who will never stand in need. I may say, indeed, to many of those around me, as you would wish in years to come to enjoy good dinners as you have done this evening, have an eye to the future progress of the Dental Hospital. I cannot sit down without offering my most hearty congratulation to those to whom is entrusted the education of the students in Dental Surgery. You succeed, of course, because you have been so energetic, and there is so much wisdom in your energy. You recognise the fact and act upon it, that the only valid steps that can be taken for the advancement of a profession is through the education of its members. Charters and the like may be, to some extent, the outward sign of progress, may be in some measure the record that progress has been made, but after all the real state and power of a profession must be determined by the character and conduct of its members, by their claim to professional and public confidence. You see this clearly, and you advance accordingly. May I tell you with what pleasure I lately listened to the proposal of my old friend your Dean, that there should be a preliminary examination for all students of Dental, as well as for those of general, surgery (cheers). I remember how Mr. Hamilton Cartwright, at the distribution of prizes the year before last, pointed out this want, and now it is decided that the want shall be supplied. There may be some who will think this hard, and others who may declare loudly that it cannot be necessary; but surely such objections are founded upon very shallow views of what our students are and what they ought to be. If a man now-a-days is to get a decent living amongst us he must speak and sometimes write, at least, one language which he calls his own (laughter). He must spell too, if he is to take part now in one of our great national pastimes (laughter). Then, is it not well that these things which he must do somehow, he should do with tolerable accuracy? Moreover, who that knows anything of the subject of education can doubt that, by some previous training in the knowledge of our schools, a man is far better equipped to grapple with the difficulties of those studies which are strictly professional? Are these propositions beyond question? Then have you done right in the latest step you have taken? There is no fear of the practicability of your new scheme. Macaulay has, I think, said somewhere that genius obeys the same law as cotton, the supply being adapted to the demand. I do not know whether we are all prepared to go the length of endorsing this statement; but I know well that in matters of education and examination within certain limits the supply is equivalent to the demand; that what you continue to ask for up to a certain point you will get, and, as a rule, very little, if any, more (laughter). Yes, gentlemen, we will drink to this toast, not with empty sound, but in a spirit of determination that the great work so successfully set in motion shall be faithfully carried on. You have not only the experience of age in the example of kindred institutions to guide you, and you have shown how ready you are rightly to avail yourselves of this; but you have an energy of youth all your own, and, for the present time at least, unity of purpose. By-and-by as you move onwards differences and divisions must inevitably arise, but pray pull together as long as you can (cheers). I know well that all who sit at public dinners are not hearty supporters of the cause they celebrate; but here, as I have said, I have no misgiving. Look around me where I will I recognise on all sides well-known faces, men earnest and steadfast in the cause, men not untried, but who have shown by their own career what they can do if they will. The men who have placed themselves in the foremost rank of their profession are with us to-night. They and others have made the Hospital thus far conspicuously successful, and having put their hand to the work they are not the men to turn back from it now (cheers). I give you "The Dental Hospital and School of London," and with it the health of Mr. Thomas Hills.

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* For list of Stewards see p. 228.

Mr. Hills.—Mr. Chairman and gentlemen, when I came into this room to-night I had no idea that I should be called upon to return thanks for the Committee of Management, the department to which I belong. The Chairman has spoken of the great success which has attended the Dental Hospital. I am pleased to say that from its commencement

I have been on the Committee, and I have had great pleasure in belonging to it. I have always found the Committee determined to work with energy; indeed, if it were not so we should not be in the position we now occupy. But do not fancy that because we are in a good position we shall always go on in the same way without that energy; and, indeed, we really require all your help. I am very sorry that the gentleman who should have returned thanks this evening, Mr. Campbell de Morgan, is not amongst us. A more worthy man, one who has devoted himself more successfully to the Hospital, you could not find. I am sorry that he is not well enough to be present, but I trust it will not be long before he is amongst us again. Gentlemen, we are not here to-night to ask you for money, not that we have got too much (laughter), in fact, I do not mind whispering to you that we want a little more. We do not ask you for any now, but if you have any kind friends who would like to subscribe to the Hospital do not forget to mention the matter to them. Once more let me thank you on behalf of the Committee of Management (cheers).

The Dean (who was loudly called for) said :—Gentlemen, in obedience to your wishes, though quite out of rule, I have the great privilege of returning thanks for the School this evening. And the more sensible I am of the honour of representing my colleagues, the more conscious I am of my unworthiness to do so; in fact, I hardly know by what right I may claim to represent our School at all. I can scarcely lay claim to be one of the medical officers, and although a Dean, my position is not exactly a clerical one. So that I must apologise to my colleagues for my imperfect representation of them. But after the very eloquent speech of our Chairman I feel I need say but little with regard to the course we have taken. You will remember that last year a distinguished surgeon and graceful speaker—I mean Mr. Le Gros Clark—alluded to the connection between the College of Surgeons and the Dental profession, and to the advantages which our body derived from that connection. The institution of the preliminary examination for Dental pupils will, I believe, strengthen that bond, and will induce and enable many more of our students to avail themselves of the advantages of full membership in addition to the Dental diploma (cheers). But, gentlemen, I should like to say one thing: let us always remember that it is the possession of our own special diploma which attests our capability for the practice of Dental surgery (cheers). By all means, let those who can afford the time and cost avail themselves of the opportunity of taking both diplomas. They will never regret it, for they will thus during their pupilage acquire broad views of the science of surgery, and also secure greater privileges than the special diploma alone confers. But those who originated the educational movement twenty years ago —and the majority of whom were members of the College— distinctly advocated the principle that a strictly medical or surgical diploma does not, of itself, prove that its possessor is familiar with the details of the practice of Dental surgery. And surgeons of the highest eminence and greatest distinction always admit their incapacity for Dental practice. In returning my sincere thanks, therefore, for the kind way in which you have called for me this evening, when we are met together to celebrate our Dental School, let me most earnestly urge the claims of that diploma, which it has been one of the chief objects of our School to elevate, to the regard and respect of all the members of the Dental profession (cheers).

Mr. Underwood.—I rise as the exponent of the feeling not only of the Dental Hospital students, but I believe of a large proportion if not the whole of the Dental profession in order to propose the toast which has been confided to me. The name of the President of the College of Surgeous, apart from his professional dignity and status, will be sufficient to command the respect of every member of the Dental profession. In referring, then, to the present President of the College of Surgeons, I would appeal to my brethren whether they have ever in their wildest dreams of what their success might be, expected to receive such a kindly and hearty welcome as they received from that gentleman, distinguished as he is, not only by his professional position, but by his private virtues. I am quite sure that my brethren felt it a very high honour when Sir James Paget undertook the distribution of prizes at the commencement of our last session. I wish I had the power to put before you, gentlemen, what our real feeling is towards Sir James Paget. It is, I can assure you, a feeling (I am not using the word extravagantly) of a most affectionate character. The principles that he enunciated and his own professional career hold out a bright and shining light to all our young students, which I trust they will follow. I have also to propose the health of the Board of Examiners. Whatever their duties may be (and in certain cases I believe they are painful to themselves) they are actuated by a sense of the duty imposed upon them, and I am perfectly certain that whatever the result of their labours may be they have honestly done their duty (hear, hear). There is a great deal in honesty of purpose; there is a vast amount of meaning in that term; and our diplomas would not be worth the paper upon which they were written if we did not feel perfectly sure that they were given after an honest and independent test to those who deserve them. Such being the case I may say that you gentlemen the Board of Examiners have undoubtedly the hearty good wishes of all the members of the Dental profession. Our desire is that you may long remain in your positions, and so stringently apply the rules of your examinations, that we may feel that none but those who are competent will obtain this diploma. Sir, the toast that has been placed in my hands is a somewhat large one, for it also includes the visitors. As regards the visitors on this occasion, all I can say is that I do not believe that we should have had them at this table unless they had felt that those whose guests they are were men actuated by an earnest purpose and had a certain end in view. How far that end may be accomplished, how far our earliest visions may be realised, we cannot tell, but I am sure that you, our visitors, have come here believing that the Dental profession have an end in view and a determination in view, and that they mean to hold their diploma as a test of their fitness to meet in professional consultation, and that they will so conduct their practice as to benefit the public at large. I now call upon you to drink the health of the President of the College of Surgeons (Sir James Paget), the Board of Examiners, and the Visitors (cheers).

Mr. Le Gros Clark.—I have much pleasure in replying to this toast. It is a triple toast, and I hope I shall not succumb to the weight of it. I will not pretend to any remarkable difficulty or diffidence in replying; for the way in which the name of Sir James Paget was received, as it always is received in public, satisfies me that you fully appreciate his worth, position, and abilities. The way in which you responded to the mention of the College of Surgeons, when your worthy Dean was speaking, satisfied me that your are gratified, may I venture to say proud? of your connection with that body. And lastly, as I believe I am addressing a body of gentlemen who, as far as they desire it, possess our diploma, I may reasonably conclude that we are as a Court of Examiners tolerably popular with you (cheers). My experience in this capacity, which has extended now over several years, has taught me that we are very differently regarded by three classes of gentlemen. First, there are those young gentlemen who are aspirants for our diploma and who regard us with a certain amount of awe, mingled I trust with respect. Then there is a second class who are altogether perverse in their opinion of us, gentlemen who, to use the technical phraseology, have been "referred to their studies for six months." These gentlemen always find that there is something radically wrong and defective in our system of examination (laughter); or they visit their misfortunes upon the head of the unfortunate examiner, who is either incapable of performing his task properly or has been vindictive or negligent or unjust in his mode of examining, or at any rate has failed to appreciate their great worth (laughter). Now, sir, I am very much pleased to find that the remarks which have been made by Mr. Underwood were so thoroughly appreciated by you, and I trust that you all feel from the heart that the principles upon which we act are those of simple justice and desire to do our duty without regard or favour to any. The last class, to which I have already referred, those who possess our diploma, are willing to regard us as a popular and well-regulated body. After the eloquent remarks from the chair it is unnecessary for me to dilate upon the importance of your branch of the profession, I will not call it the Dental profession, I prefer to call it your branch of the Surgical profession (hear, hear). If the ills to which flesh is heir, and to which you have to minister, do not commence with birth, they at any rate attack us before we leave the cradle, or (to use the more fashionable term) the basinet; and as we attain maturity how much would the prospects of many of both sexes be marred but for the attention which you give them, by feeble imperfect articulation, by disfigurement of face, and even by impaired digestion. And lastly, as we become edentate, when we arrive at that period when the grindstones of the mill cease, or rather when there is no grindstone to grind (laughter), then life is prolonged and rendered comfortable by your services. Now where this is the case, and appreciated as it is by the general public, I need not further enforce what has been referred to by your Dean, the importance of your connection with general surgery. It is by this connection that your art, I will not call it a mechanical art, your mechanism and dexterity in extracting or stopping teeth, has been raised into the position of a scientific art. I am sure you will receive with gratification what I say in reference to the mode in which the candidates have acquitted themselves during the past year. Though there have been exceptions—exceptions which I think our Chairman must have had in his mind when he made some remarks upon the subject of general education—as a rule the candidates for the Dental diploma have acquitted themselves creditably and to our satisfaction. I am particularly pleased to say this in the presence of your Dean, who takes an almost paternal interest in all the candidates. Before I sit down allow me to add one remark; that in order to draw the bond of association between us and you more closely a recommendation of the Dental Board has been accepted, and will be acted upon by the Council of the College, that in future any aspirants to the office of teaching Dental surgery must, in addition to other qualifications, be possessed of the Dental diploma of the College of Surgeons (cheers). I thank you for the patience with which you have listened to me, and regret that you have not had the pleasure of listening to the eloquence of the present President of the College.

Mr. Coleman.—Among the liberal professions that adorn this country there is no one that has received less of public reward than the medical profession. When this has been reported in high quarters, I am given to understand that the answer has been returned, "Gentlemen, the work you do is so grand, so valuable, so elevating, that you have within yourselves the highest reward, namely, the reward of your own consciences." And I quite agree with that, for pleasant as a high-sounding title may be, the best reward that an honest man can have is the reward of his own conscience. Still, gentlemen, we have rewards within our own body, and amongst the highest of these rewards are the high positions that men can take in our benevolent and medical societies—such societies as the Medico-Chirurgical, the Pathological, the Medical, the Clinical, and last of all, and eclipsing all in regard to name, the Odontological Society of Great Britain. Gentlemen, at the present time we have presiding over us an individual who, by sheer work, industry, and perseverance, has attained that high office, and is carrying out that high position with the greatest credit to himself. I beg to propose the health of Mr. Charles Vasey, President of the Odontological Society (cheers).

Mr. Vasey.—Gentlemen, in the name of the Odontological Society of Great Britain I beg to return to you my most sincere thanks for the hearty way in which you have responded to this toast so eloquently proposed by Mr. Coleman. At the foundation of the Society we had in our ranks some very remarkable men. There was one who by his professional ability gained a wide-spread reputation. He was the man who raised the character of Dentist to a far greater pre-eminence than it ever had reached before. He was a lover and a patron of art, his sympathies and aspirations were all lofty and elevating, and he gained or deserved among his professional brethren the name of King of Dentists. I refer to the late Samuel Cartwright. We had another eminent in all the social qualities and a great administrator; one who devoted himself to the profession and took the greatest interest in everything that advanced or elevated it, I refer to the late Arnold Rogers. A third, by head and heart eminently great, commanding our admiration, love, and esteem, I am heartily thankful to state we still have amongst us, and I pray sincerely that he may long survive to adorn the profession for which he has done so much. I allude to John Tomes (loud cheers). Another of whom, being present on this occasion, I will only say that the name of our Society originated with, is Mr. Edwin Saunders. To the united wisdom of these great men, assisted by the counsel of other luminaries, we are indebted for the foundation of our Society, and I am convinced that no foundation could have been more noble or more disinterested than that was. It was founded for the diffusion of knowledge and the extension of friendly intercourse among the members of our profession. I am happy to say that from the foundation of the Society until now it has met with continued prosperity. You will be pleased to hear, Mr. Chairman, that we are at present in a very favorable position indeed. Our Library becomes more extensive every year, our Museum more valuable, the list of our members more numerous, and the balance at our banker's greater. There was only one thing that for years and years we never had, and that we have lately come into—a little opposition (cheers and laughter). Since you have elected me as your President it has been communicated to me that the Society is a very conservative one, that it places far too great a value on qualifications and examinations, and that it is a hindrance to many popular movements. But for its being in the way we might have a very popular, widespread organisation, that would take under its fostering wings everybody, in fact, take everybody in (laughter). I have also heard that we are lax in the extreme; that we accept any one as a member: and our doors are open to any one who comes and knocks with an introductory subscription in his hand. I am sure that you know better, and I think that these extremes of positive and negative opinions are a proof that we stand in a thoroughly sound condition, and that we have nothing whatever to fear for the future. Before sitting down I will take the opportunity of departing a little from the programme. For this pleasant meeting we are largely indebted to the labours of two gentlemen (hear, hear). Having been on the committee I know how much they have devoted themselves to the work on this occasion. I will not trespass on your time by asking them to make speeches, but I will request you to give a round of applause to those to whom we are so greatly indebted—Mr. Merson and Mr. Parkinson, jun. (cheers).

Sir CHARLES MACGREGOR.—Gentlemen, I have been suddenly called upon to propose a toast which is very important in itself, and I am sure will be highly acceptable to every member of this company (cheers). Recollecting as I well do the beautiful and eloquent address which Mr. Savory delivered at the distribution of prizes in Leicester Square last October twelve months, I am not at all surprised at the ability and tact with which he has discharged the duties of Chairman at this dinner. It may almost be said that a public dinner is a national institution, and that no charity or society, however good in its way, can succeed if the national feeling on that point is disregarded. I have heard, and I believe it, that there is a kind of connection between a good dinner and the Dental Hospital (laughter). However, it is not always easy to find a good Chairman, and I am sure it would be difficult if not impossible to find a better Chairman than Mr. Savory. I do hope for the cause of science of which Mr Savory is an ornament, and for the sake of this Institution which is connected both with science and humanity, that the health of Mr. Savory may long be preserved. I beg to propose his health, with the sincere expression of our wish that his life may be long and happy (cheers).

The CHAIRMAN.— Gentlemen, I should not have ventured to occupy the chair this evening had I not the fullest confidence in your unbounded indulgence. Indeed, of this you have given me such proof I shall never forget it. I thank you very heartily for your great kindness in placing me in this chair, for your patience and forbearance, and to crown all, for the generous words in which Sir Charles Macgregor has proposed my health, and for your cordial acceptance of it. I should make a sorry return for all this if I spoke at any length now, but I cannot conclude without expressing my deep personal regret at the absence of Mr. De Morgan. I am sure you will all agree with me that this Institution owes so much to him, is so largely indebted to his admirable judgment, his administrative ability, his high character and professional rank, that his absence, even for this evening, cannot be regarded otherwise than as a great loss. We will drink to his health, and hope that for the sake of this Institution he will very soon be in his place again (cheers).

Mr. CHARLES TOMES.—I had not the smallest expectation of making a speech this evening, but I have been asked since dinner to propose the health of the Medical Schools of Great Britian. I propose it with great pleasure as being myself a teacher in our Dental Hospital and School, a school which numerically can compare favorably with a large number of medical schools in Great Britain; and I rise with the more pleasure because it gives me the opportunity of saying one or two words upon a question which has lately agitated our minds a great deal. A proposition has been brought before the profession generally for the formation of a somewhat exclusive party among Dental practitioners. Thus far, to the best of my belief, that body has not constituted itself, and I thoroughly hope it may never constitute itself (cheers). As things now are, our school occupies an intelligible position. Certain specialities have arisen in connection with medicine which can be better taught at a special than at a general school. Those who wish to practise ophthalmic surgery go rightly and naturally to Moorfields to learn it, and those who wish to practise Dental surgery go naturally and rightly to our Dental Hospital in Leicester Square (hear, hear). It is the wish of those most earnest for the advancement of the Dental profession that it may be possible at some future time to adopt some common mode of admission to its ranks, that a Dentist may enter the medical profession through a common portal, or some modification of the common-portal scheme, while at the same time he shall have obtained that special education which fits him to practise as a Dentist. In the mean time, for my own part, I shall endeavour to get what position I can by steadfastly working as a teacher in our Dental School, which is intimately and necessarily connected with other medical schools; and so long as I retain that habit of mind which I have inherited from a father who stands higher in your esteem than I dare hope ever to stand, I shall not seek position by uniting myself with any limited clique or party which cannot fairly represent the great body of Dentists in the kingdom. I should hardly have spoken thus had it not been that illness has prevented my father from being here to-night. I feel that as a young man I am perhaps presuming in speaking so strongly, but as my father is not here to speak for himself, I may venture to say, knowing his opinions better than most people present, that you may take my words as in a measure representing what he thinks. I have only now to propose the health of the Medical Schools of London, coupled with the name of Mr. Langton, and to add that I regard the Dental School as standing in the same relation to them as that in which the Moorfields School stands in regard to ophthalmic science; and while it is unlikely that any general hospital can compete with such an institution as Moorfields in ophthalmic science, it is, I believe, impossible that any general hospital can advantageously undertake the teaching of Dental surgery in all its minutiæ.

Mr. LANGTON.—It ill becomes me as your youngest guest, the youngest I venture to think in point of age, the youngest I know in point of invitation, to demur to any part of the programme which your Honorary Secretaries have drawn out; but I confess I feel myself somewhat like a shuttlecock between two battledores; for on first entering this room I was requested to return thanks on behalf of the Examining Board of the College of Surgeons (why I know not, except that I have nothing to do with them), and now I am desired to return thanks on behalf of the Medical Schools, which I think must be out of compliment to your Chairman, with whom I have the pleasure of being a colleague. It is not for me to enter here into the manner or the method of the education of Dental students, but so far as the general hospitals are concerned, we endeavour to give them a broad general view of anatomy and also of the professional part of their work, and I know of no students whose aim has been more constant and whose success in after-life has been greater than those Dental students with whom I have been associated as teacher for the last ten or eleven years at St. Bartholomew's Hospital; and I speak not alone for St. Bartholomew's, but for all the hospitals and schools in London and the United Kingdom, and in their name I return you my best thanks for the kind way in which you have received this toast (cheers).

The company then separated.

ODONTO-CHIRURGICAL SOCIETY.

ANNUAL MEETING, HELD AT EDINBURGH, MARCH 13TH, 1876.

W. A. ROBERTS, Esq., M.D., L.D.S., President, in the Chair.

THE minutes of the previous meeting, as also the annual report by the Treasurer, were read and approved of.

Mr. J. O'Duffy, Dublin, was balloted for and elected a member.

Messrs. R. Hooper and G. W. Watson, Edinburgh, were proposed for membership.

The following members were, upon the recommendation of the Council, elected office-bearers for the years 1876-77:

President.—G. Buchanan, Esq., Glasgow.

Vice-Presidents.—J. K. Chisholm, Esq., L.D.S., D. Hepburn, Esq., L.D.S.

Treasurer.—P. Orphoot, Esq., M.D.

Secretary.—A. Wilson, Esq.

Curator.—D. W. Hogue, Esq., M.D., D.D.S.

Council.—W. A. Roberts, Esq., M.D., L.D.S., W. Campbell, Esq., L.D.S., Dundee, C. Matthew, Esq., J. R. Brownlie, Esq., L.D.S., Glasgow.

The thanks of the Society were voted to Mr. Finlayson (Leith) for his demonstration of the different processes involved in the production of cases in continuous gum work, given to the members of the Society at an adjourned meeting held at his residence on Saturday, 11th December, 1875.

The President.—Gentlemen, before leaving this chair I have taken the opportunity afforded me, to give you one or two cases, out of many I have recorded in my case book, which I thought might possibly prove somewhat interesting, which I will style "odds and ends."

As our time is limited I shall confine myself to a mere sketch of those cases, and will crave your indulgence for a short time while I lay them before you, such as they are. The first case I shall refer to was a chloroform case.

On a Saturday afternoon, after my assistants had left for the day, Mr. B—, a stout gentleman of about 50 years of age, called upon me to have the left upper wisdom tooth removed, and expressed a wish to have chloroform; I objected, upon the plea that my young men had left for the day, and stated, I always preferred having one of them present when I administered chloroform. I was over-persuaded however, Mr. B— saying he was sure he would be "as quiet as a lamb." I put him under the influence of the anæsthetic, and certainly up to this point he was perfectly quiet. I had no sooner applied the forceps however, when a violent struggle commenced. I feeling a good deal annoyed, supposing I had not put him deep enough under its influence, apologised for my apparent mistake, and gave him some more. While he was inhaling this second dose, I could not help thinking he must have been under the full influence of the chloroform after all. Under this impression, I made up my mind to act accordingly, that, once having got hold of the tooth by the forceps, I would not let go until I had it out. As before, the same result, for the moment I seized the tooth the same violent struggling went on, but being on the *qui vive*, and determined not to be foiled I held on. Mr. B—, driving his arms furiously about, stretching himself back to his full length, so, what with his struggles and my persistency, at last the operating chair fell over, and we both accompanied it, "but I got out the tooth," the patient the while on his back in the chair and I on the ground beside him. After the extraction of the tooth I with great difficulty rolled him out of the chair on to the floor, fearing suffocation from the flow of blood entering the windpipe. Upon recovery, his look of astonishment was most ludicrous.

Upon my explaining to him why he was in such an ignoble position, he laughed heartily, and said he was totally unconscious from the beginning, and that he had had an exciting dream, which was, that he had received a message from the country of "life and death," that he was running down to catch the train, when a Mr. Tait stopped him, and held on to him, but at last, after a violent effort he broke away from him and wound up his description of his dream by saying, "Eh ! man but I gave him an awful thrashing."

I had rather an interesting case of a young lady, who accompanied by her medical man called to have a molar extracted under the influence of chloroform, the whole process was quite satisfactory, but to our surprise after the active effect had passed away, we found our patient quite sensible as to hearing, but could neither speak nor open her eyes, she replied to our questions by smiling and nodding her head only, nor did she recover her speech and power over her eyelids for several hours afterwards; no bad effects followed.

As I have given one case of violence under chloroform, I will confine myself to the relating one other.

A medical man, who suffered much from his teeth came to have an offending member of his mouth removed. He was a powerful man, and fully six feet in height, I had repeatedly given him chloroform and upon each occasion was obliged to have present no less than three assistants to hold him in the chair.

Upon one occasion he nearly overcame all four of us: he got out of the chair, rushed like a maniac round the room, roaring all the time like a bull. Whenever he came to himself he invariably burst out laughing.

Upon one occasion he was confined to bed, and sent for me to extract a tooth for him. I found him in a small, open French bed: his wife was present. I flattered myself, "*surely*, as he is in bed on his back, we might be able to manage him." The chloroform was given fully; but, as in the former case, the moment I applied the instrument, the old state of matters began, a regular scrimmage began in the bed, which ended in his pitching me from one side of the bed to the other. I certainly did not feel it a very dignified position finding myself on *my* back on the floor. We ultimately got a street porter and a servant to hold the patient, and even then the operation was by no means a simple one.

In all the times I have given this gentleman chloroform, the effect was the same; perfect in its action; the patient quite unconscious of anything going on.

Since the introduction of the nitrous oxide gas, I have not given him chloroform, but the gas—and singularly enough on the three several occasions I have done so, he has been perfectly quiet, as far as *motion* was concerned, but he roared all the time most lustily. The last two times he had the nitrous oxide gas was for the removal of a nasal polypus.

My friend Dr. Peddie mentions a case of his. A gentleman to whom he had given chloroform became very restless, getting up and jumping round the room like a sparrow, the worthy Dr. holding him for fear of his hurting himself, and jumping with his patient until the effect wore off.

The most amusing case I have had was where a Russian lady, while under the effects of chloroform used *very* strong language indeed, expressing herself in French and Russian alternately. Every time she was under the influence of the drug the result was always the same, even to the same words. The peculiarity of this case is, only under chloroform is there the slightest approach to such an indulgence, the lady being a refined and highly educated person.

Another lady while under the anæsthetic, "had a dream" as she called it. Upon recovery, she told me that she had been in the country for a fortnight. She told me of all her amusements during that time; but, above all, that there was a most beautiful baby she was so fond of: but one day they tore this lovely infant from her, and forced her into a boat. When she awoke she was delighted to find it only a dream.

I may mention the case of another lady while under the effects of chloroform supposed she had been translated to heaven. She imagined that she saw her Redeemer and spoke to Him, but was ultimately thrust out of His presence. Upon her regaining consciousness she appeared like a person out of her mind. After a good deal of persuasion, she told me this dream: it had affected her so deeply, she declared no amount of pain whatever should induce her to take chloroform again; nor, as far as I am aware of, has she done so.

I will now content myself with chloroform cases, and doubt not each and all of you have experienced many similar cases.

Before I leave the violent cases, I should like to mention rather an amusing one; it is that of an Irish labourer, who came one morning to have a molar extracted. He had no chloroform, but instead he had plied himself well with *whisky*. In fact, he was three fourths intoxicated. As soon as he was seated in the operating chair, he began swearing at a great rate (rather putting my Russian lady in the shade), shouting out that if I hurt him in the least, "he'd knock me down." He kept repeating this so often and so violently, I began to think, it might be as well to guard against this contingency of being knocked down. I got up from the workroom a couple of assistants, and made them stand at the back of the chair, and if they saw the least attempt at violence, to pin him down. Sure enough, as soon as I had applied the instrument, up went his clenched fist ready to strike: he was at once secured. Then came my turn. Holding fast by his grinder I gave it a good shake, and said: "You drunken scoundrel! You beg my pardon at once for your shameful conduct." Still he threatened. After another good shake of his tooth, I said to him, "Well, my good friend, here you are, and shall stay till you are quiet," every now and then letting him feel by a good twist that he was at my mercy, but not attempting to extract his tooth, which I was determined not to do until I had quite subdued him. At last, he muttered out that he was sorry, and besought me to take out his tooth. This was all I wanted, so out came the tooth: he sat perfectly quiet. My pleasant tweeks upon his molar went a good way in sobering him, for I did not spare him in the least: it was a rich scene, and highly enjoyed by the young men.

The most unlucky affair I have met with was in the case of a "young lady," that is, of an uncertain age, who was an annual patient, paying a certain fee by the year. One day she came to me to have an abscess treated; I required to open it; she was very timid, so much so that I could not persuade her to keep her head still; at last I placed my hand on the top of her head to keep it steady; you may judge of my surprise when I found the head still moving from side to side, while that which my hand was resting upon was quite steady. At once I saw what was wrong; I immediately turned myself round so that she might rectify matters without my observation, while I appeared to be busy wiping my lancet.

This wig was a most elaborate affair, covering the entire head, with splendid top knots, large comb, and long ringlets down each side of the head. Now my unfortunate blunder arose from taking off my hand just as the wig turned round, one set of curls hanging over the nose, the other at the back of the head. No one could have acted more delicately in the affair than I did, yet, I never saw that lady again after that day.

As to the nitrous oxide gas; not having had so many cases as of chloroform ("of which I have had 4000, and about 700 cases of gas,") I have not, of course, so many cases of interest to report. I, however, may mention one or two. The first was that of an English clergyman, who desired to have the gas; he was extremely nervous, so, at his request, by way of giving him courage, I had to explain the whole process to him, his wife sitting in an easy chair in the room. While talking to him, viz. my reverend patient, the bag was filling all the time. My attention being taken up with the required explanation, I quite forgot the filling bag; when all at once it burst, with the report of a pistol, up started the patient, he bolted out of the room, and was up stairs into the drawing room like a shot. But the most amusing part of the scene was the perfect coolness of the lady, who was sitting quite placidly in her chair. She said after her husband's sudden disappearance, "poor William, he is so nervous," "of course," she continued, "that is the usual way you give the gas, isn't it?"

I am almost afraid of tiring your patience, but I should like to refer to a rather startling effect produced upon a young lady of about fifteen years of age. After the effect of the nitrous oxide gas was produced, and the tooth extracted suddenly, she became as rigid as a stone, her body bent backwards to a most unpleasant degree. After application of cold water to the face, friction, &c., she soon recovered, and exhibited no further disturbance than is usual after the inhalation of the gas.

Last week I had a similar case. This was that of a boy twelve years of age, the treatment being the same as in the former case, and with the same satisfactory result.

These cases happening so near to each other in time, and so alike in every way, I should, had we made the gas ourselves, feared there was some impurity present, but as I always use the gas prepared by the Messrs. Coxeter, I can only look upon it as a coincidence.

I had an unpleasant case in that of a lady, from the country, while under the effects of the gas, passing her urine freely—a most unpleasant accident for all parties.

One more case and I have done. I must confess it is not a very pleasant subject, but certainly characteristic.

A young lady, about 30 years old, wore a pivoted front tooth; by accident she swallowed it; she called for advice, was recommended to eat solid food, and not to take any medicine. She at the same time got the impression for a new tooth. To our surprise she called the next day saying she would not require the new tooth, as she had found the old one. She had searched for it with a piece of stick, and having thus found it, wished it replaced, which was done. I suspect you will be inclined to say as we did at the time, "The nasty body."

I have, as no doubt most of you have done, met with very ingenious substitutes for artificial teeth, mady by patients for themselves.

One lady came to me to get an upper set. She asked me for a pair of scissors; with these she cut some threads that were about a bicuspid, she then took out of her mouth a string of small pieces of bone; she explained to me that, living far in the country, she had fallen upon a plan of her own to supply the deficiency in her mouth in the mean time, and this was, she had filed these bits of bone out of the handles of old toothbrushes.

She then pierced one end of each piece with the point of her scissors, strung them on a silk thread, and tied them in position, and wonderfully well they looked, I can assure you.

The next I should like to mention was that of a gentleman, also from the country; he had lost his two upper front teeth, I believe from an accident; he had filled up the space with a piece of cork, and splitting a quill fitted pieces on the cork to represent the two teeth he had lost.

Not to multiply cases further, I will only mention in conclusion a stopping case, the patient being a gentleman shortly to start for India; he wished a tooth stopped, which was done in gold. He expressed a wish to have his mouth carefully examined, as he was to be abroad for some years, this was done, a small decay was discovered, until we arrived at the eleventh small cavity; at this stage the gentleman looked up in my face with a waggish smile, and said, "Doctor, I think you are making the holes." In after years he thanked me warmly for the good I had done him, not having required any Dental operation during his absence of six years.

I could give you many more such cases as I have now had the pleasure of doing, but I must really not trespass on your time further upon these subjects—not very scientific ones, I freely admit.

I have now, gentlemen, come to the end of my reign as your President, and before I resign my "staff of office" to our President elect, viz. Mr. George Buchanan, of Glasgow, allow me to thank the members of the Society, the members of Council, and last, but not least, our excellent Treasurer, Mr. Hepburn, as also our worthy Secretary, Mr. Wilson, for their uniform support and sound advice during my term of office.

It is now my pleasing duty to inform you of the continued prosperity of the Odonto-Chirurgical Society. The only thing we have to regret is the absence, for a lengthened time, of one of our oldest members from indisposition, and that of one or two members from other causes.

We have had excellent papers during the session. I do not like to particularise, but I cannot refrain from alluding to one of these on 'Shrinkage of Amalgams,' by Mr. Brownlie, of Glasgow, which was thought worthy of discussion in London as well as here.

Nor can I allow myself to let this opportunity pass without referring to the generous conduct of Mr. Finlayson in devoting an entire day to show to the members of this Society practically the process of mounting pieces in mineral, called the "continuous gum work." A more interesting day (to say nothing of the elegant collation provided for us as well) I am sure those members of the Society who were present will agree with me we have not experienced for a long time, and is a pleasing result of the good feeling produced by our associating together as a Society.

When the simplicity of the whole process is seen, it excites our admiration when compared to what mineral block and tooth making used to be some thirty years ago, as Mr. Buchanan and Mr. Cormack will bear me out in saying; along with myself, they had their own share of such work. I am sure neither of these gentlemen will ever forget the widow of a mineralogist (who lived in Register Street), and supplied us with felspar, rock crystal, "titanum," &c., and whom they dubbed with the name of Mrs. Rock Crystal. I fear I have taken up too much of your time, yet I will intrude still a little further on your patience, while I frankly confess when you elected me as your President two years ago, I accepted that honour with a feeling of nervousness, knowing my own inability to do full justice such a position required of me, and yet I still further confess I have a feeling of regret at the prospect of retiring into the ordinary duties of the Society once more.

Allow me now, gentlemen, to thank you individually and as a Society for the great indulgence you have accorded me in all my shortcomings during the two years I have had the pleasure of acting as your President.

Gentlemen, I now retire in favour of our future President, Mr. Buchanan, wishing him and the Odonto-Chirurgical Society every prosperity in days to come.

On the motion of Mr. Williamson, the thanks of the Society were given to the retiring President for the manner in which he had filled the Chair for the last two years.

Mr. Buchanan having taken the Chair, briefly thanked the Society for the honour they had conferred upon him.

Mr. Campbell then read a paper "On the Preparation of the Mouth for Artificial Teeth."

Mr. President and Gentlemen, experience cannot be handed down from one generation to another, but principles the result of experience may be imparted to younger men, and immediately applied by them in their professional requirements.

To offer my experience and to elicit the experience of other members of this Society is the object I have in view, in bringing this subject before the meeting.

It is seldom indeed that the Dentist is asked to supply artificial teeth without either the remaining teeth, or roots, or gums, standing in need of treatment, and the comfort and satisfaction of the patient depends very much on the skill displayed by him.

It is not my intention to treat of, or even refer to, the various conditions in which the mouth may be found, when application is made to have lost or defective teeth replaced by artificial substitutes; but to confine myself to the consideration of the extraction or retention of solitary teeth and roots, preparatory to the reception of artifical ones—this being the part of the subject I more especially wished to introduce—itself large enough, and regarding which, like most other subjects, opinions are held as diverse as the Poles are asunder.

I know it is impossible to lay down exact rules which will guide to a uniform mode of practice; in *every* case the practitioner must act according to his best judgment. And we should be slow to condemn a professional brother in his treatment of any particular case. Nevertheless, I hold that there are general principles which may, on occasion at least, help men younger in the profession to decide as to the treatment of certain cases such as we are considering.

I will now proceed to state briefly the points I wish to express an opinion upon, and this being the first time this subject has been before the Society, from its importance and interesting nature, I feel certain that little more is demanded of me than to open it, and that a free and full discussion will follow.

First, then, we will consider the opinions for and against the extraction of isolated teeth, next of roots, and lastly we will speak of the time necessary to elapse between the extraction of roots or teeth and the replacing of artifical substitutes.

First, then, as to solitary teeth. The reasons given for extraction of isolated teeth by those who adopt this mode of treatment are so well expressed by Mr. Kyan in a paper read before the Odontological Society—and which he states to be his usual practice—are so well put that I will repeat one or two of his arguments in favour of extraction and endeavour to show that, with me at least, they have no weight. The case he refers to is that of a lower canine tooth, and what is said of it will hold equally good in the case of any solitary tooth, or teeth, with but few exceptions. His first objection to retaining the tooth is that it is an impediment to the obtainment of a perfect model of the jaw. Against this objection I would only submit one or two models with solitary, and even misplaced solitary teeth, accurately taken. His second objection, that "it would be all but certain to mar the uniformity of the teeth;" against this I would say, the absence of uniformity would be an advantage; indeed, I would be inclined to extend the irregularity, holding that "the perfection of art is to conceal art." It is in these studied irregularities that we distinguish the true artist from the mere mechanic.

The third objection is that it would rise conformably to the law which regulates the antagonism of natural teeth. Against this I would say this unevenness, when it does occur, could be easily cured by a corundum wheel attached to the engine, and applied to the raised tooth or its antagonist.

The fourth objection, that however healthy it might at present be, there is no guarantee that disease would not attack some of its tissues at some future time. As well propose to extract any number of remaining teeth, because disease may attack them at a future time.

The principle which I advocate, and endeavour to carry out in practice, is to retain every firm tooth at all free from disease, and also those teeth which though diseased are yet amenable to treatment.

Unfortunately from personal experience I know the advantages of even a solitary lower incisor too well not to advise the retention of every tooth having a hold of the jaw.

I am not ignorant of the difficulties we at times meet with to prevent us carrying out in practice that which we know to be sound in principle. It not unfrequently happens that the treatment to be adopted in a given case is clear and simple, but circumstances prevent us acting as we could wish. Patients so frequently put off visiting us till some necessity compels them, when we are obliged reluctantly to take the case in hand, doing the best we can *under protest.*

Here is the model of a case where, after urgent and repeated advice, my better judgment had to give way, not to the force of circumstances, but to the prejudice of the family medical man, whom had I known I might have influenced. The patient, a young lady, æt. 20, had three superior incisors a good deal discoloured. The cavities of decay were large and filled with osteo; the fangs also were filled by me. The appearance was the objection, so she wished them to be extracted. I proposed pivoting, there being no possibility of alveolar abscess. I departed from this, the correct treatment, and suggested the next best, namely, to have the crowns cut across, retaining the roots with the view of maintaining the original contour of the face. But no, nothing would do but to extract the teeth, which I did after explaining the consequences. I mention this case in illustration of how at times one is obliged to act contrary to their better judgment. I will be pleased to have the voice of members on such cases.

In my opinion it is more culpable to extract teeth where they should not be extracted, than to cover with artificial teeth roots which, from their diseased condition, ought to be extracted, because in the latter case extraction can be resorted to at any time, should trouble follow, but in the former the evil once done cannot be undone.

Now, with regard to roots I will divide them into two classes, first, those to be extracted, and, secondly, those to be retained.

In the first class I embraced all roots entirely, or partially covered by the gums.

In the second class roots entirely above the margin of the gums. With regard to the first class my rule is, with but few exceptions, extraction, that is to say, when I can prevail upon my patient to submit to the operation. Although I acknowledge that in many cases where I have not had my own way, but inserted artificial teeth over roots partially, and at times completely, under the gum, always excepting molar roots, the result has been frequently more successful than I expected. Invariably when there are roots in the mouth I prescribe an antiseptic wash to be used at least once a day with a soft brush.

I hope you will not misunderstand me. I would not insert artificial teeth, even at a patient's most urgent solicitation, unless I had good reason to suppose from the state of health, &c., that they might be worn for a considerable time at least without trouble. On no account would I put artificial teeth over molar roots buried under the gums, as the pressure exerted in the act of mastication would be certain to increase that chronic inflammation and tumefaction of the gums so invariably associated with roots in this condition.

In the second class, that is, roots entirely above the margin of the gums and firmly fixed in the jaw, excepting roots of the upper molars which can seldom be retained with advantage, as treatment in their case is out of the question, but any of the other ten, as a rule, may be successfully treated, and, therefore, ought to be retained. It is seldom, however, we find a mouth in so favorable a condition as to permit us to preserve the whole ten anterior roots. What I have said with respect to the retention of roots of the upper incisors, cuspids, and bicuspids, I would repeat with greater emphasis of all roots in the lower jaw when above the gum, as their value to the patient is much greater than those in the upper jaw, and consequently a greater effort should be made to retain them.

It is a most important fact, not to be lost sight of, that artificial teeth in the upper jaw are much more serviceable than artificial teeth in the lower jaw. Every experienced Dental surgeon must be aware of this; but, unfortunately, I know it not only from observation, but from personal, the most telling of all, experience. This difference is especially felt between the upper and lower jaw where the teeth have been extracted early in life. I have noticed with peculiar interest the mouths of patients, who have been under my own care for the past twenty-five years, who have worn with comparative comfort artificial teeth over roots, and where the absorption of the fangs has gone on steadily that the alveolar ridge of both jaws have been more prominent, and consequently better able to bear pressure than in those cases where the teeth have been extracted early, as in my own case.

I feel quite certain, although not physiologist enough to go into the matter, that with the gradual absorption of the fang there is also a deposition of osseous structure. This I cannot help thinking determines the difference I refer to between cures of early extraction and where the roots have been got rid of by absorption.

In a paper read some time ago by Mr. Fox before the Odontological Society, he advocates the early extraction of roots, for this, among other reasons, that a young mouth, in which from premature loss of the teeth the alveolus is almost entirely absorbed, will far more readily accommodate itself to a large bulk of foreign matter than an old mouth will, and thereby a youthful appearance will be longer preserved. This I readily admit; but what to my thinking is far more important is the greater power to prepare food for the stomach which will undoubtedly be secured in cases where the roots have been retained, and nature herself gradually gets rid of them by absorption. Of course, I principally refer to the roots of lower teeth, as it is in the inferior maxilla the difference is felt in bearing that amount of pressure necessary to the proper mastication of food. I am quite aware that this condition of the under jaw is not always the result of early extraction of teeth or roots, but is more frequently seen in those in whom exists a scorbutic tendency, or from the effects of mercurial salivation.

We will now consider the treatment of roots over which artificial teeth are to be placed. The Dental engine has very much simplified this both as regards patient and operator. In preparing the fang for filling, the engine comes to our aid. With a few turns of a four-sided drill the canal is opened up; then with one or two different sized burrs the decomposed dentine is removed; the entrance to the canal made larger than the extremity, giving free access both for cleansing and filling. After syringing out all particles of the *débris* with warm water I proceed to dry the canal, if in a condition for filling, with wadding previously prepared in potash. A second piece of wadding saturated in creosote, or carbolic acid, is inserted into the canal which is again washed with absolute alcohol, dried, and filled with osteo-gold or Sullivan; the latter I use frequently for fang filling. Should there be reason to fear *after-trouble* from immediate filling, this is delayed for a few days, and adressing left in the canal.

The beneficial results from fang filling is well known. The accumulation of purulent matter in the canal being prevented, its secretion at the extremity of the root, will in a majority of cases, either cease altogether or go on no faster than it is reabsorbed, as has been shown by repeated experiments. Thus it would seem that the amount of vitality which a tooth derives from the investing membrane is sufficient ordinarily to prevent it from exerting any morbid action upon the surrounding parts.

I have seldom attempted, however, to fill the canals in the lower roots; for one reason they are much more difficult to fill, and also from the smallness of the canal less liable to decay.

When cutting down the roots to the desired level the engine is invaluable. Instead of a steel file, so disagreeable to the patient, a small corundum wheel, or cone will speedily cut down the roots to the extent desirable. My practice is to cut down to the free edge of the gums on the labial and buccal surfaces, and to within a line or sixteenth of an inch from the gums on the palatine or lingual surfaces of the roots. I consider it essential to success, that these last-mentioned surfaces should be *above* the gum. When the plate, with the teeth attached, is to be placed over the roots, these ought to be painted with some coloured *pigment* to indicate the point of contact between the roots, and the plate, and the latter cut away until the pressure be equally distributed over both roots and gums. Or the plate may be painted, and a portion cut from the roots, always taking care that these surfaces are kept above the gums.

In glancing over the literature on this subject, I find that about twenty-five or thirty years ago, Dentists were much more ready to sacrifice both teeth and roots than now. The tendency in this, as in other matters connected with Dental surgery in the present day, is towards conservatism in a very marked degree, although, alas ! to my certain knowledge, there are still many—I do not refer to characters who have no principles to guide them in practice but the principle of getting money—and that many are as much given to a wholesale slaughter of the innocents when preparing the mouth as ever.

We come now to speak of the length of time necessary to elapse between the extraction of teeth and replacing by substitutes. On thinking this matter over, however, I find so many important questions to arise for consideration, that to do it justice, I fear this branch of the subject must be left for a future occasion, or perhaps some other member of greater experience and abler pen may be prevailed upon to favour the Society with a paper on this head alone, which in itself will afford ample material for discussion.

I will merely mention that I frequently insert partial pieces a few days, and sometimes immediately, after extraction, but in the case of a complete denture where a number of teeth have been extracted, especially in the lower jaw, I do not usually insert these before three, four, or even five weeks. The plate I re-model when necessary, according to the absorption of the alveolar border.

There is one thing I should like to mention before I conclude, in connection with inserting teeth over lower roots. Here is a specimen of a method I have sometimes adopted with very great satisfaction, and comfort to my patients, namely, a gold plate with a gutta percha lining. I use Truman's gutta percha. When preparing for this, a layer of wax is placed on the model equal to the thickness I wish to have the gutta-percha lining. Casts are made from this and the plate struck up in the usual manner. Pieces of platina gauze are soldered to the plate to take hold of the gutta percha. The teeth are then secured to the plate. The gutta percha first adapted roughly to the model previously soaped, then washed, and again heated and applied to the mouth and adjusted to the bite. The teeth on the plate, of course, having been previously fitted to the bite in the work room. For this kind of work vulcanite is not suitable for one reason, that when heating the gutta percha to be placed in the mouth, there is a risk of bending the vulcanite. Another reason is that gutta percha in combination with vulcanite becomes somewhat disagreeable to the mouth, but gold and gutta percha, with daily cleansing, not at all. From Mr. Truman's paper on "Plasticity in Dentistry" embodied in tne 'Transactions' of the Odontological Society much information may be obtained.

The following communication by Mr. Kyan, L.D.S., Preston, "On some Additional Uses to which Stent's or Hind's Composition may be applied in the Dental Art, besides the Ordinary one of Taking Impressions of the Mouth," was then read by the Secretary.

Mr. President and gentlemen,—As Stent's or Hind's composition is so universally employed by members of our profession it is exceedingly probable that nothing new or original may be found in the following observations concerning the uses to which it may be applied.

The enumeration of those known to me may, however, have the effect of eliciting information from the members of this Society as to others which are not known, and so some good may arise and your time may not have been altogether employed fruitlessly.

Mr. Stent, of London, as you are aware, had the merit of having first prepared this useful material, and Mr. Hinds, of Coventry, that of having very much improved upon the original composition.

In the following remarks it will be referred to simply as the "composition," for it is not intended here to enter into a comparison of the relative merits of the various kinds and qualities which are to be found in the market.

The composition was originally devised for the purpose of taking impressions of the mouth, for which it is indeed admirably suited, and rivals, and in some cases supersedes, the generally acknowledged superior material for that purpose, namely, plaster of Paris.

It is much cleaner, more easily managed, and far more agreeable to the patient than plaster, and these advantages will naturally make it more popular.

In using the composition it is desirable to avoid two sources of failure to the inexperienced, namely, overfilling the impression tray, and overheating throughout the material itself.

If I may be permitted to detail my experience, I have found the best results attainable by putting into the tray barely sufficient of the composition worked up at too high a temperature to put into the mouth, and just before taking the impression I suffer cold water to trickle from a tap close at hand on to the tray, which is reversed, so as to avoid allowing any of the water to touch the surface of the composition. The impression is then taken under the following conditions:—The surface of the composition is hot and thoroughly plastic, the inner part or core is less so, and that which is in contact with the tray, cold and rigid.

The composition more rapidly sets when thus treated, and the tendency to "suck," as it is technically termed, much reduced.

Pressure in the direction of the gums should never for a moment be relaxed after the first contact, till the tray is removed from the mouth. This pressure is maintained without difficulty by going behind the operating chair and resting the arms on its top, and with the fingers of both hands supporting the tray in position. In the case of a lower impression the operator assumes the same position, but maintains a downward pressure by means of the thumbs and grasps the patient's chin with his fingers protected from contact therewith by a napkin or cloth. If the patient is desired to put out his tongue "as if showing it to the doctor," as soon as the tray is inserted into the mouth, the downward pressure may then be commenced without risk of taking the impression of that sometimes troublesome organ.

So far I have dwelt upon points with which you are as fully conversant as myself, and if I am unable in what follows to offer you anything novel, I must beg your indulgence and forgiveness.

I have found the composition to give the best results after it has been softened once or twice. With use it becomes, as you are aware, difficult to soften. It loses its smooth texture, and its colour changes. In this state it is regarded as spent, but it is not altogether useless.

It may be employed in many ways as a substitute for plaster of Paris, particularly in cases where time is an object. Thus, it will furnish an impression of a vulcanite plate (which can be used in lieu of a plaster model up to the point of flasking the case) in a repair, or it can be employed to copy a piece which it is intended either to remodel or reproduce in duplicate by moulding it around the piece in sections, and afterwards inserting the teeth in the impressions they have left, and binding up in wax the body of the case, guided by the hollow mould left by the vulcanite of the original piece.

It may likewise be used as bite adjusters at any rate in certain cases where the accuracy of the bite is questioned, and the plaster models need to be held together so as to furnish an approximate idea of the articulation.

By a lucky accident, I learnt that a gentleman in the South of England whose name I do not know, and therefore cannot mention as I could have wished to have done, was in the habit of employing the composition as a substitute for gutta percha in making trial plates.

I was the more readily enabled to adopt the idea, as Mr. Fletcher, of Warrington, had kindly given me a rolling pin contrived and made by himself for the purpose of rolling out modelling wax. It consists of a cylinder of hard wood about six inches long and about an inch and a half in diameter, having at each end a flange or narrow collar an eighth of an inch larger in diameter than the centre, and is provided with handles three inches long at each end, about three quarters of an inch in diameter. With this roller I was enabled to produce sheets of composition of uniform thickness (about the sixteenth of an inch), and taking an ordinary plaster model it became an easy matter to adapt a part of one of these sheets to it by means of hot water so as to form a plate on which to build up in wax the teeth intended to be used. These plates I found to be infinitely superior to anything else I had used before for a similar purpose. The edges can be either cut, scraped, sandpapered, or slightly softened and moulded to meet the requirements of the case. As the composition is rather brittle when cold it can be strengthened at parts either with iron wire or ordinary tin strips perforated so as to catch into the composition.

In some cases the fit of the trial pieces can be made so accurate that they can be flasked without the use of the model which is then retained to correct the vulcanised plate. This is particularly the case with regulating plates, and much saving of time is thereby effected.

In the 'British Journal of Dental Science' mention is made of the composition having been used as a temporary filling, but I have had very little experience of it in that way.

In an alarming case of secondary hæmorrhage where I had failed to arrest the bleeding by means of cork plugs, it occurred to me to use a piece of the composition over the lint and styptic, and with the best results, as from that moment all trouble ceased. The composition was not made too hot, and after the jaws had been brought together slowly, they were retained in contact by a handkerchief placed under the chin and tied over the head.

In such cases as fracture of the lower jaw I should imagine that sheets of sufficient thickness to be strong enough might be moulded into splints, and the composition might prove serviceable in ordinary fractures, and replace the wooden and gutta percha splints now in use.

It has been used as a covering for such parts of a gold frame as happened to be visible in a case that came under my notice, but as at present composed it did not appear to be a success and speedily became detached. It had been applied, as I was told, by roughening the surface of the gold, and dry heat. Perhaps as a varnish it might be rendered useful in such cases, and as a protection to recently introduced fillings of white cement.

I have found it to be unsuited to "taking the bite" as we understand the term, for which purpose I employ wax.

I endeavour to secure an accurate bite by desiring the patient to close the mouth hard on the wax *and swallow*. This has generally the effect of bringing the jaws together in a natural position, which you will readily test for yourselves by attempting to swallow with the lower jaw protruded. I repeat these directions when trying in the composition trial pieces, and when I see the lower jaw assume what I believe to be the proper position, I hold it there, and mark with my finger nail, or any suitable instrument the two portions of wax that come in contact, for my guidance when they are removed from the mouth.

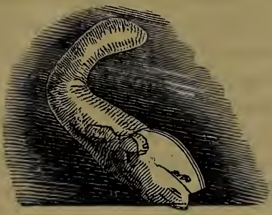
To tell patients to *bite* the wax has generally the effect of causing them to throw the lower jaw outwards, as if in the act of biting with the front teeth which is exactly what we do not wish them to do. This was, many years ago, pointed out to me by a practical patient, and I have since modified my directions and profited by the hint.

The Secretary was instructed to convey the thanks of the Society to Mr. Kyan.

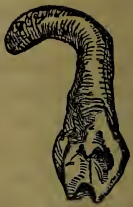
It was arranged that the discussion of both papers would form the business of the next meeting.

Mr. W. B. MACLEOD exhibited a supplemental canine (see engravings) extracted from the upper jaw of a male patient, aged thirty-five.

Some three years ago he extracted the roots, &c. of fourteen teeth; in about a year the two wisdom teeth made their appearance, and in course of another twelvemonth the above depicted canine. The presence of an artificial denture kept it from protruding further than the lower margin of the alveolus. Caries, however, Exostosis.



Tooth *in situ*, portion beneath dotted line only portion exposed.



Caries.

Posterior view.

attacked the tooth upon its coronal apex, devitalisation of the pulp followed, and suppuration supervening it became necessary to extract the tooth.

Dr. Roberts exhibited three cases. The first case I have to show, Mr. President, is that of the great projection of the six upper front teeth and alveolar process of a young lady of about twenty years of age, the upper teeth as you will observe by this model project fully an inch beyond the lower, as also the alveolar process uncovered by the lip to the extent of an inch, so that fully an inch and a half of teeth and gum were exposed, the lip not being able to cover them—a very ghastly sight; and which had cost the lady great vexation for years. I found I could not get the face piece of the gas apparatus to approach the face. She was not allowed to take chloroform, so I was reduced to the use of the ether spray, which was quite successful. I removed the teeth about two months ago, and at present the absorption has so far reduced the gum and process that the lip almost covers the gum. I hope in a couple of months more to be able to give her an artificial piece. I can only compare the appearance of this mouth as it was before the removal of the teeth, to that of a horse's mouth when, as you may often have seen, the animal draws up its lip, exposing the gum and teeth; only in this case my patient could not draw the lip over the teeth as the horse could at pleasure.

I have here a case shown by the model I show you of the front tooth of the right side upper jaw, so placed as to be half round out of place presenting the edge of the teeth to the front. This case met with rather an unfortunate termination, I had got it nearly turned into its proper position, when, one morning I received a note, saying, the tooth had been knocked out of his head. It appears the little fellow romping about with his school fellows, at a game of "hare and hounds," one of his playmates came against his mouth with a sharp blow with his head, and fairly knocked the tooth out of his head.

The last case I have to show is a simple one of a supernumerary tooth of the usual form of such teeth, placed immediately between and a little behind the upper central incisors. This was of course extracted.

I have nothing further of interest to show beyond a few cases of ordinary regulating cases.

Dr. Hogue exhibited a case of well-marked osseous union between a second molar and wisdom tooth, extracted from the upper jaw, left side, all the three roots of the second molar being as it were fused on to the wisdom tooth, which is well developed, but lies a little higher up on the second molar.

Mr. R. Hepburn exhibited an extraordinary case of protracted dentition, in which the incisors and canines in both jaws were reduced to nearly the edge of the gum by attrition. Also, by the permission of Mr. Henry Rogers, a rotating spiral spring.

Mr. De Lessert, of Aberdeen, said he had no specimen to bring before the meeting, but he wished to remark on a satisfactory method of treating cavities in the labial surface of superior incisors. Gold or amalgam in this conspicuous position was much objected to by patients, and other compositions lasted but a short time. He had found the insertion of a carefully fitted chip of an artificial tooth, held in place by white filling, answer without appreciable change for four years, and he thought this worth mentioning, as probably the idea might prove serviceable.

On resuming his seat Mr. A. Hill, of London, told him he had heard of some gentleman in the South adopting this plan with similar results.

Cases of interest were also brought forward by Messrs. Campbell and Buchanan.

Messrs. C. Ash and Sons exhibited (per Mr. R. Hepburn) a pneumatic mallet, the invention of Mr. Kirby, of Bedford, but their own make. It was quite a novelty, none having yet been delivered to the profession. They also sent two new hand-pieces for the engine, and specimens of their new diatoric teeth, in a variety of shades. The pneumatic plugger excited considerable interest, and the thanks of the Society were voted the Messrs. Ash for their exhibition.

The President then announced that their next meeting would be held in Edinburgh, on Thursday, 13th July.

DENTAL REFORM COMMITTEE.

A meeting of the Dental Reform Committee was held on March 17th, at the house of the Medical Society of London, Cavendish Square.

Mr. Charles James Fox said, before they proceeded to the election of a Chairman, he begged to be allowed to say a few words as to what had already been done in reference to this Committee, by way of rendering an account of his stewardship. He asked this because his name was appended to the circular calling the meeting; and he begged to thank those present for their attendance. He would mention, without entering into particulars which must be pretty well known to all, that certain views were enunciated in the 'British Journal of Dental Science,' and that a plan for the formation of a Committee was suggested therein, founded upon the formation of a Committee which had worked successfully on a former occasion, and had obtained very great success. Coincident with the appearance of those articles there was a movement in the northern counties, particularly in Manchester, to effect a somewhat different object to that mentioned in the Journal. He would not enter into any details as to that object, but would simply say that, upon the appearance of the second article in the Journal bearing upon the subjects for which this meeting was convened, he received from Mr. Sydney Wormald, who issued the circular convening the meeting at Manchester, an invitation to be present and an assurance that if he were, instead of the meeting taking the form originally proposed—something like an independent association of Dentists—it would do its utmost to support the views advanced in the Journal. Certain resolutions were passed at that meeting, and amongst other things he was requested to take upon himself the task of endeavouring to form a Committee to carry out the views expressed in the first resolution. Being requested to take those steps, he felt that his best duty and the first step he could take would be to appeal for the aid of the great leader in their profession, Mr. John Tomes (hear, hear), inasmuch as Mr. Tomes had permitted him to go to Manchester conveying the sanction of his name in approval of the first resolution there proposed. In consultation with Mr. Tomes he met two other gentlemen, Mr. Thomas Rogers and Mr. Underwood, and the proposed or suggested list of the Committee was drawn up. That list was sent to every gentleman whose name appeared thereon, with a request that they would signify their assent as to whether they would or would not act upon it, and of all those to whom it was sent only two gentlemen objected from anything like personal reasons. The proposed list was sent to every subscriber to the fund, in order that subscribers might signify their assent to the gentlemen named thereon being elected for the purpose of seeing that the money subscribed for a special purpose was disbursed for the purpose for which it was collected. The whole of those papers were returned to him, with very few exceptions, and were open for the inspection of any member of the Committee. Mr. Christopher Heath and Dr. Cholmeley, the editor of the 'Medical Times and Gazette,' were requested to examine the voting papers, and to state whether the gentlemen named thereon were duly elected by the subscribers to the Fund. On their certifying that the Committee was fully and fairly elected, the list was published in the Journal, and so far all went well. Unfortunately for them Mr. Tomes' health failed, and though he took a deep and active interest in the movement, and was heartily with them in every way, he felt that he was utterly unable to fulfil the duties of the office to which they would certainly have elected him, viz. that of Chairman of the Committee. He (Mr. Fox) had on two occasions spent several hours with Mr. Tomes at his country house in vain endeavouring to persuade him to the contrary; but he persisted in his determination to decline in approving of any one being elected to the post of Chairman who would not be able to fulfil its duties. With his concurrence and advice he then called upon two other gentlemen, but certain events had occurred which made them deem it advisable that they should not take too decided a part in the matter, and they preferred to leave it to the voice of the meeting as to who should be elected as Chairman. He tried at the last moment to induce Mr. Tomes to alter his determination, and then finding that the time of the Annual Dinner was approaching, in order to suit the convenience of their country friends, with the consent of the gentleman who had kindly acted as their temporary Treasurer, he took upon himself the responsibility of calling the Committee together for that evening. Having made that statement he now resigned into their hands the responsibility which had fallen upon his shoulders for the last six months. If he had failed in anything, he expressed regret, he had simply done his best. It now remained for the Committee to appoint a Chairman, and if he might make a suggestion to elect their officers and Executive Committee (applause).

On the motion of Mr. Dennant, seconded by Mr. Browne Mason, Mr. James Parkinson, the temporary Treasurer of the Fund, was requested and consented to preside on this occasion.

Mr. Fox, having been then called upon by the Chairman to open the regular business of the meeting, said their first duty was to elect a permanent Chairman, and their respected Honorary Treasurer having taken the chair, he hoped the meeting would unanimously ratify the office of Treasurer that he had hitherto undertaken temporarily, and also beg that he would take, in addition to that, the post of permanent

Chairman, leaving the actual work of Treasurer to be done by deputy.

Mr. Underwood seconded the proposition.

The Chairman said he must beg at once to say that he could not accept the office of permanent Chairman, as he had not time to attend to it. He did not like to undertake anything that he could not see his way clearly to succeed in, and there were many younger men present who could give more time to it. He would be very glad to do anything else he could to help them, but he must decline the permanent chairmanship.

Mr. Alfred Coleman said he believed this movement was one which every gentleman practising Dental Surgery would be most interested in forwarding, and it certainly was very desirable that they should have a well-honoured and respected name at the head of their affairs. They knew that a name with good antecedents carried weight with it, and as, unfortunately, Mr. Tomes could not undertake the position, he knew of no one who would be more suitable to occupy the post than Mr. Samuel Cartwright. He had, therefore, great pleasure in proposing Mr. Samuel Cartwright to be Chairman of the Committee.

Mr. De Lessert, of Wolverhampton, seconded the proposition.

Mr. Browne Mason, of Exeter, proposed that Mr. Thomas Underwood be elected to that post.

Mr. Underwood said he felt strongly the advisability of inducing their friend Mr. Cartwright to accept the post. For himself, his time was so much occupied that he must decline. They could not do better than appoint Mr. Cartwright.

Mr. Cartwright, in replying to the question from the Chairman as to whether he would accept the office, said he was not aware of the intentions of the Committee, but still if he could be of any use as Chairman he would be very glad to accept the post. He was always very glad when he could do any good to the profession or be of assistance in any way.

The motion was unanimously agreed to.

Mr. Coleman said he was quite sure he was simply echoing the wish of the meeting by asking Mr. Parkinson to continue the office of Treasurer.

Mr. Dennant seconded the motion, which was agreed to.

Mr. Dennant proposed that Mr. Turner be requested to act as Honorary Secretary.

Mr. Cartwright seconded the proposition.

Mr. Turner thought that if they had a Secretary residing in the provinces it would give a more cosmopolitan character to the proceedings of the Committee. The gentleman who had proposed his name (Mr. Dennant) resided at Brighton; it was not far from London, and he thought it would be well if Mr. Dennant was elected Honorary Secretary to the Dental Reform Committee. So far as he was concerned, he was afraid to undertake the duty.

Mr. Dennant, while thanking Mr. Turner for his suggestion, thought that at any rate the Honorary Secretary should reside on the spot, so as to be in London on all occasions. It would be perfectly impossible for him to guarantee his presence at every meeting of the Committee, as he held certain appointments in Brighton which took up a great deal of time. He hoped, therefore, that Mr. Turner would consent to act.

Mr. Turner said, if Mr. Dennant refused to accept the office, he would propose Mr. Fox as the Honorary Secretary. Mr. Fox knew far more about everything and everybody than he did. If he would not object to take the office he would be the best man for the position.

Mr. Browne Mason seconded the suggestion.

Mr. Fox said he thanked them very much for the honour they wished to confer upon him by nominating him for that onerous office, but under all the circumstances he must respectfully but decidedly decline it. He cordially supported the proposition that Mr. Tnruer shonld be elected.

Mr. Coleman suggested that they should have a local and a country secretary (hear, hear).

Mr. Dennant thought it hardly necessary at present, although a country secretary could be afterwards appointed if it were found necessary or desirable. He hoped that Mr. Turner would accept the office.

Mr. Turner said he would do his best. He could but resign.

The motion for the election of Mr. Turner as Honorary Secretary was then agreed to.

The next business was the appointment of an Acting Committee.

Mr. Fox said he had consulted Mr. Tomes on this subject. Looking at the General Committee, Mr. Tomes' feeling was, that the London men were all such truly representative men, that it would not be right to leave out one of them on an Acting Committee. At the same time, instead of only having representatives from the north, south, east, and west of the country, he thought it right that they should have a larger representation. Mr. Tomes accordingly marked off on the list those gentlemen residing in the country whom he thought it would be well to place on the Acting Committee. Mr. Fox then handed to the Chairman copies of the marked list, which were distributed to those present.

The Chairman suggested that too large a Committee was always a very undesirable thing.

Mr. Sims, of Birmingham, said they had already a Committee, and he thought they could dispense with an executive altogether. They would all have notice of the meeting, and those who could not attend would be absent. He did not think they would forward matters very much by having an Executive Committee. They were there as an elected Committee, elected to carry out a principle, and he really thought they would not gain anything by choosing a certain number of gentlemen to form an Executive Committee.

Mr. Coleman pointed out that with a Committee of that size it would be utterly impossible to deal with the details that would arise. A small Committee should be selected, with the understanding that they were to take no step, except in routine work, without at all times consulting the General Committee.

Mr. Fox said another suggestion had been made, namely, that the Executive Committee should be formed simply of the officers of the Society, with representatives of the north, south, east, and west of the country, or, if possible, of the three kingdoms. He believed a small Committee would really do the work better; at the same time it would be distinctly understood that the Committee would do nothing but prepare the draft of some scheme to be submitted to the General Committee, and that a meeting of the General Committee might be called at any time.

Mr. Dennant said he was prepared to propose the names which Mr. Tomes in his wisdom had pointed out. They were very representative men. The names are as follows:

G. Buchanan, Glasgow.
Samuel Cartwright, London.
Alfred Coleman, London.
John Dennant, Brighton.
John O'Duffy, Dublin.
W. Fothergill, Darlington.
Charles James Fox, London.
D. D. Hepburn, Nottingham.
F. A. Huet, Manchester.
G. A. Ibbetson, London.
J. King, York.
J. Howard Kyan, Preston.
J. N. Manton, Wakefield.
Browne Mason, Exeter.
W. J. Newman, Liverpool.
G. T. Parkinson, Bath.
Charles James Peacock, Scarborough.
C. Roberts, Ramsgate.
Thomas Arnold Rogers, London.
Samuel Lee Rymer, Croydon.
Edwin Saunders, London.
C. Sims, Birmingham.
Dr. Smith, Edinburgh.
John Tomes, London.
J. Smith Turner, London.
Thomas Underwood, London.
Sidney Wormald, Stockport.

Mr. Sims seconded the proposition.

Mr. Turner suggested, as a rider to the resolution, that five of the Sub-Committee should form a quorum.

Mr. Fox seconded that suggestion, and the resolution, with the rider, was put to the Committee and unanimously adopted.

Mr. Coleman said there was one very important business that the meeting should undertake, and that was, that if possible, they should affirm the one great object which they had met to carry out. He thought if that was put in a convenient form this was the right opportunity on which it should be done.

Mr. Underwood said he was present at the meeting at Mr. Tomes' to which Mr. Fox had referred when the proposal was made, and the opinion of those present on that occasion was extremely decided upon the point, and it was upon that ground that many had given in their adhesion to the movement. The object for which they were called together was very fairly stated in the proposal moved by Mr. Dennant, of Brighton, and seconded by Dr. David Wormald, of Southport, at the meeting held in Manchester—"That it is desirable that a Committee be formed to see what steps can be taken to arrest the continued influx into the profession of illegitimate practitioners, by the adoption of the principles of Registration and Compulsory Education.'" The feeling of those who met at Mr. Tomes' on that occasion was, that that was the primary object they had in view. It was thought that a Committee should decide what steps to take to effect that object; whether the matter would extend further was a thing to be seen as time rolled on, but the real object of the Committee was to take that subject, and that alone, into consideration.

Mr. Cartwright thought it would be well to pass a resolution affirming that principle.

Mr. Underwood said that he should be very glad to move a resolution to the effect "That this Committee accepts as the object to be placed before it for its consideration the resolution proposed by Mr. Dennant, of Brighton, and seconded by Dr. David Wormald, of Southport, at the meeting held in Manchester—'That it is desirable that a Committee be formed to see what steps can be taken to arrest the continued influx into the profession of illegitimate practitioners, by the adoption of the principles of Registration and Compulsory Education.'"

Mr. Dennant, as mover of the resolution in Manchester, had great pleasure in seconding that resolution.

Mr. Sims thought they should go a little further than that, and endeavour to obtain the views of gentlemen present upon the question.

Mr. Turner said he did not think it was necessary to be tied by a formal resolution. They understood the cause of their existence. It was, in the first instance, the Manchester meeting, and they were called together with a view of, as far as possible, carrying out the views of that resolution. It was now proposed to tie their hands down by that resolution, and as a member of the Committee he should certainly object to bind himself by any such formality. That they would be guided, as far as in them lay, by the resolution he was quite convinced, but he thought that they were strong enough to walk upon their own legs. He did not wish to be bolstered up by that resolution in any way, nor yet to be retarded by it.

Mr. Coleman said he made his suggestion simply for this reason, that many gentlemen present expressed themselves as uncertain of the object which the Committee was intended to carry out. The gentlemen whose names were proposed on the Committee on all sides expressed themselves doubtful as to what the duties were to be, and seemed a little anxious, like himself, to have them clearly defined. He had no idea of proposing any resolution to bind the Committee, but simply a resolution which should guide them under the very great uncertainty of feeling that seemed to prevail as to the objects they were to carry out.

Mr. Underwood said he considered they would be bound by it, and they could not do anything better. Their object was to see what steps could be taken. If they refused to be bound by that they had better not have met at all.

Mr. Sims asked if they could not know what steps would be taken.

Mr. J. W. Wood (Dumfries) said he should like very much to have had some idea of how the matter was likely to be carried out.

Mr. Turner said this part of the business, at all events, was premature. If any gentleman wished to know how the business was to be carried out, no doubt the first thing would be to call a meeting of the Executive Committee, and if any gentleman on the Executive Committee would kindly suggest what hour and day would suit country members best that would really be taking the first step in advance. He did not see how they could go further on the present occasion, as the meeting was summoned for a specific object.

Mr. Fox said, before they discusssed anything they must have a scheme prepared, and some idea given, of what they were to discuss. His impression was that the Executive Committee would prepare a scheme to be deliberated upon by the general Committee.

Mr. Dennant said the views and aims of the promoters of the movement might be pretty well understood from the pages of the Journal. It was impossible for them to arrive at anything like a satisfactory discussion of the question on that occasion, because it was only by calm deliberate discussion in the Sub-Committee that anything like a satisfactory scheme could be drawn up. No discussion that could take place then would lead to any satisfactory result.

The resolution was then agreed to.

The TREASURER, in reply to a question, stated that he had about £425 in hand.

Mr. O'DUFFY said, before they separated he begged to remind them that they owed a debt of gratitude to Mr. Fox for the great pains he had taken in the matter. It would be unbecoming in them to separate without acknowledging his services in some form, seeing the enormous amount of work that was involved in the formation of such a Committee; they owed a very great debt of gratitude to Mr. Fox for the manner in which he had carried out the duties entrusted to him at the meeting in Manchester, and he therefore begged to propose that the thanks of this Committee be accorded to him.

Mr. DENNANT had great pleasure in seconding the proposition.

The CHAIRMAN said no one knew better than he did the trouble and the amount of time and anxiety that Mr. Fox had bestowed upon this movement. He could endorse all that Mr. O'Duffy had said, and could assure the Committee that a vote of thanks was most justly due to him.

The vote was unanimously agreed to.

Mr. Fox, in responding to the vote, said he had but one desire, namely, to see something like peace and unity in their specialty. He looked forward to the day when they would not have too many lines drawn here and there, but would act on as broad a basis as possible, and on the principle of compulsory education.

On the motion of Mr. Huet, seconded by Mr. Kyan, a vote of thanks was unanimously accorded to Mr. James Parkinson for his service as Honorary Treasurer and Chairman of the meeting, and the proceedings terminated.

Miscellanea.

THE RECENT BALLOT AT THE ODONTOLOGICAL SOCIETY.

By CHARLES JAMES FOX, M.R.C.S., L.D.S.

A CONTEMPORARY journal having published a report of some incidents that occurred on the occasion of the last ballot for the election of members at the meeting of the Odontological Society, held March 6th, 1876, in which I took a somewhat prominent part, it becomes necessary that I should as publicly explain the circumstances under which I acted. As it is contrary to the custom of the 'British Journal of Dental Science' to publish in its regular report of the meetings any matter that it is not usual to publish in the 'Transactions' of the Society, I must, to render my explanation clear, copy the report, such as it is, to which I have above alluded. It appears as follows:

ORDINARY MONTHLY MEETING, MARCH 6TH, 1876.

C. VASEY, Esq., in the Chair.

"The minutes of the previous meeting having been read and approved,

The balloting of members was about to be proceeded with in the way which had lately been adopted by the Society for convenience sake, namely, of balloting for a number of candidates simultaneously, when

Mr. UNDERWOOD said that, as it had been originally the custom of the Society to elect the candidates individually, he protested against the method proposed, and requested that the candidates be elected one by one.

The meeting having signified their approval of Mr. Underwood's proposal, the following gentlemen were balloted for in succession, and duly elected:—

Mr. Augustus Winterbottom, 16 Sloane-street; Mr. Lewis B. Pillin, Conduit-street; Mr. George William Payne, 34 Ebury-street; Mr. G. W. Field, 39 Upper Brook-street, Grosvenor-square; Mr. David Cormack, 77 Margaret-street, Cavendish-square; Mr. George Hilditch Harding, Manchester; and Mr. J. F. Corbett, 3 South Mall, Cork.

On the name of Mr. Frank Alexander Huet, 120 Oxford-street, Manchester, being announced for ballot,

Mr. C. J. FOX asked whether he was right in supposing that the ballot paper containing the name of the last-mentioned candidate went round as having passed the Council declaring that he was eligible for election according to the laws.

The PRESIDENT said he was afraid they could not enter into the question now, as it was a matter of management with the Council.

Mr. FOX said that, as the Council declined to answer the question, he must then take it for granted that the fact of the candidate's name in question having been put in nomination before the Society indicated that the Council considered him eligible according to law. There might be individual differences of opinion, but according to the usage of the Society no gentleman had ever been proposed for the ballot unless he had passed the Council as eligible.

The PRESIDENT.—I am afraid we cannot allow this to go on; it is quite irregular. You are asking me a question with regard to the Council.

Mr. FOX.—Pardon me; the circumstances are irregular. I have been told by a large number of gentlemen here that they are prepared to vote for the right and proper thing, but they do not know what the right and proper thing is ("Chair").

The PRESIDENT.—Really I do not think I can allow you to go on.

Mr. FOX said that one gentleman had already been heard protesting against a certain course of action, he thought he had a right to claim a hearing.

The PRESIDENT said it was scarcely fair for Mr. Fox to refer to that. He did not wish any alteration: it was merely a matter of arrangement, to save the time of the Society. It was not a matter of principle.

Mr. FOX said it appeared to him that a great deal of canvassing had been going on (cries of "Chair"), and a number of post-cards had been sent round and circulated amongst the members; and he thought they were all entitled to an explanation of the circumstances ("Chair"). If, however, the President ruled it, he must sit down ("Chair, Chair").

The PRESIDENT could not admit that Mr. Fox was in order.

The ballot was then taken, and as a result Mr. F. A. Huet was declared to be not elected.

The PRESIDENT asked Mr. Fox if he questioned the result of the ballot.

Mr. FOX replied that he only wanted to know if it was one third of the balls, or one third of those present?

The PRESIDENT.—One third of those present; but there is no question of numbers here.

Mr. FOX expressed himself as satisfied with the decision.

Mr. Hugh Peterson, of Sydney, N.S.W., was then balloted for and duly elected."

I must premise that in the summer of last year I formed the impression, from conversation with other members of the Society, that there was a very decided desire to extend the number of the members, and to encourage provincial men to join it. Acting upon this impression, when I went to Manchester last August, on being asked to sign the application of several who desired to join the Society, I had no hesitation in doing so, provided they could say that they were eligible according to the law and custom of the Society in so far that they did not advertise their profession, and had not done so within twelve months of their application.

Amongst others was the gentleman whose case is recorded above; and although his paper was signed in August, it was not until his name was brought prominently under the notice of some of the older practitioners in his town through his taking an active interest in the cause of Dental progress, which they do not appear to have done, that I ever heard one word in his disfavour; and then, although no statement was made which according to the laws of the Society rendered him ineligible, he at my request abstained from sending in his paper until I could satisfy myself whether there was, or was not, any ground for the insinuations made against him. Again and again I challenged his opponents to the proof, and again and again I got nothing but a few vague petty statements which savoured of nothing but personal feeling. If he was ineligible as an advertiser within the required twelve months I requested to be furnished with a copy of his advertisement, but nothing of the kind was forthcoming.

I therefore adhered to my nomination, and his paper was presented and passed the Council on January 10, 1876, as a candidate eligible according to the law; his name being accordingly published in the Transactions. Up to within a few days of the ballot for his election every effort was made by myself and others to obtain any proof that he was ineligible, but we could not succeed in getting any, till at the last moment an advertisement was found stating that he visited a certain town on certain days; but as no mention or indication of his profession was made this did not render him ineligible according to the law of the Society. A copy of this, nevertheless, was anonymously sent on a post-card to nearly every member of the Society, not alone, but headed by the advertisement of another, who gave the price of his teeth, &c., and this, by the printer's accidental omission of an intervening line, was made to appear as one advertisement, and by many was thought to be so, or at best a clever trick, whereas I have the written testimony of the proprietor and printer of the paper that it was a pure printer's accident, that the candidate was not only ignorant of the juxtaposition of the two, but was, moreover, ignorant of the very announcement itself, he having long before discontinued his visits to that town, and having given orders to his assistant to discontinue the advertisement, as I have the written testimony of that assistant to prove.

With personal grievances against the candidate I had nothing to do. I had only to deal with the broad question that the Council, by allowing him to be put up for election, had admitted that he was eligible—that he could not be beaten on a point of law—and that the votes against him were influenced by an ungenerous anonymous accusation, the incorrectness (to use no harsher term) of which I had evidence in my hand utterly to disprove. I did not desire to enter into in any personalities, but simply to lay before the meeting a few plain facts, which, from the lateness of the accusation, I had been able to collect only on the day of the meeting. If my endeavour to show the truth was irregular, I can only plead that the whole proceeding was irregular.

The issue of those anonymous post-cards was met by a circular to which the candidate signed his name, containing an honest appeal for fair play, and I myself sent post-cards, endorsed with my name, to several friends asking them to attend and vote, having had every reason given me to expect that I should be allowed to produce the proofs I possessed of the false nature of the charge intended to be conveyed by the anonymous post-cards, many gentlemen who would have voted for the candidate were induced to vote against him; and I would far rather be the defeated man on such an occasion than the opponents who could only gain their ends by such unprofessional, ungenerous, unmanly means.

CORRECTED LIST OF STEWARDS AT ANNUAL DINNER.

Ash, H. C.
Ash, W.
Ash, W. H.
Baily, G. H.
Bartlett, W. P.
Basset, P.
*Bevers, H. A. B.
Bennett, W. C. S.
Bennett, W. G.
Bevan, R. C.
Bodecker, T. A.
Braine, F. W.
Brand, E. E.
Brownlie, J. R.
Bull, G. R.
Burrows, W. S.
*Canton, F.
Clover, J. T.
Coleman, A.
Coles, O.
Cronin, A.
*Dennant, J.
Dickenson, M. De C.
*Durlacher, M.
Dykes, R. C.
Ebbetts, F.
Edglow, T.
Elliott, J. W.
English, T. R.
Evans, J.
Fairbank, J.
Fletcher, J. B.
Forsyth, W. F.
Fox, C. J.
Gibbings, A.
Giraud, G.
Gregson, G.
Harding, T. H. G.
Harrison, R. E.
Hatfield, T. H.
Hayman, A. G.
Hayward, H. H.
Helfrich, R.
Henry, G.
Hepburn, D.
Hepburn, D. D.
Hepburn, R.
Hill, A.
Hills, T. H.
Holford, W. J.
Hoole, S.
*Hopkinson, R.
Hunt, W. A.
Hutchinson, S. J.
Ibbetson, G. A.
Jewers, F.
Karran, J.
Keeling, G. R.
Lane, E. F.
Lyons, I. T.
McGrigor, Sir C., Bart.
Makins, G. H.
Martini, A.
Mason, J. T. B.
Medwin, A. G.
Merson, W.
Moon, H.
Moore, E.
Mummery, J.
*Myers, L. J.
Négri-Alexis de
O'Duffy, J.
Parkinson, G. T.
Parkinson, J.
Patrick, R.
Petty, F.
Phillips, H. M.
Ranger, W. G.
Read, T.
Roberts, W. A.
Robertson, J.
Rogers, H.
Rogers, T. A.
Saunders, E.
Scholefield, J.
Sercombe, W. H.
Sewill, H.
Sheffield, I.
Smith, T. A.
Stocken, J.
Sutcliffe, J.
Tomes, C. S.
Tomes, J., F.R.S.
Tracy, N.
Turle, J. E.
Turner, J. S.
Twining, Rev. G. B.
Underwood, T.
Underwood, T. F. K.
Vanderpant, F. J.
Vasey, C.
Virgin, H. J.
Visick, A. B.
Walker, T.
Weaver, G.
West, E. B.
Westall, T. J. H.
*Williams-Lloyd, E.
*White, R.
White, T. C.
Winterbottom, E. J.
Woodhouse, A. J.
Wormald, D. A.
Wormald, S.
Wormald, T.

* The names of these gentlemen were accidentally omitted from the Dinner Ticket.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From February 1st to February 29th, 1876.

Extractions	Children under 14	310
	Adults	502
Under Nitrous Oxide		228
Gold Stoppings		218
White Foil ditto		14
Plastic ditto		273
Irregularities of the Teeth treated surgically and mechanically		39
Miscellaneous Cases		201
Advice Cases		119
Total		1904

James Merson,
Dental House-Surgeon.

AN UNPLEASANT GAS CASE.

By Walter H. Fox, Esq., L.D.S.

Mrs. H—, aged about 40 years, thin and nervous, applied to me for advice.

On examining her mouth, I found the right side of the lower jaw much wasted, containing a few ragged stumps which were overlapped by an ulcerated fleshy mass projecting from the side of the tongue. The jaw itself was affected, being partially denuded of periosteum, and rough and gritty to the touch. The patient also complained of an unpleasant discharge from her mouth.

There was no sequestrum, and the disease was of about three years' standing. Judging that the stumps, if not the cause, were at least aggravating the disease, I determined to remove them. Having administered the gas (the patient going off quietly and quickly), I commenced operating, but desisted after removing one stump, the patient becoming rigid, head thrown back, body arched, jaws firmly fixed, eyes staring, breathing hard and irregular; my assistant ran for a surgeon whilst I first cleared the mouth of blood, then placing her on the floor opened her stays, &c., and dashed cold water over her face and chest; this revived her a little. On the arrival of the surgeon he confirmed my suspicion that it was merely an epileptic fit, and on inquiring of my patient after her recovery I found that she had been very subject to them, the least unusual excitement sending her off.

I think this case shows how careful we should be to ascertain something about a patient's health before administering the gas.

Gloucester; Feb. 8th, 1876.

APPOINTMENTS.

W. H. Williamson, M.B.C.M. Aberdeen University, and D.D.S. Philadelphia, to be Dental Surgeon to the Aberdeen Dispensary.

Henry Sewill, M.R.C.S., L.D.S., Dentist to the West London Hospital, to be Dentist to the Clergy Orphan Schools.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

THE NEW DENTAL SOCIETY.

To the Editor of the 'British Journal of Dental Science.'

Dear Sir,—I enclose herewith copies of the correspondence which has passed between myself and the secretary of the new association, which I shall feel obliged by your publishing, inasmuch as I have heard from one or two sources that my father and myself are supposed to have been participators in a movement which we in all respects disapprove.

I am, yours faithfully,
Charles S. Tomes.

37, Cavendish Square, W.;
March 30, 1876.

Association of Legally Qualified Dental Surgeons,
Medical Society's Rooms, Chandos Street, W.
March 23rd.

Dear Sir,—I am requested to inform you that at a Meeting of the above Association held on the 14th instant it was proposed by Mr. S. H. Cartwright, and seconded by Mr. S. Cartwright, that you be invited to become an original Member of the same. I herewith enclose you a list of the objects for which the Association has been founded, and shall esteem it a favour if you will kindly inform me, not later than the 31st instant, whether it is your pleasure to have your name enrolled as a Member of the Association?

Yours faithfully,
S. Hamilton Cartwright.

To C. S. Tomes, Esq.

RESOLUTIONS.

1. That the new Society be called "The Association of Dental Surgeons, Legally Qualified."
2. That it is founded to promote objects not contemplated by any existing Dental Society.
3. That the chief of its objects shall be:
    - *a*. The establishment of an improved Code of Ethics.
    - *β*. The endeavour to encourage a higher Educational Standard, both general and professional, for those who may hereafter practice the special branch of Dental Surgery.
    - *γ*. The furtherance of modes of practice compatible only with the highest professional status.
4. That in order to carry out the above objects, the Association shall in its commencement, meet at least six times in the course of the year.
5. That the business of the Association be conducted by a Chairman, a Vice-Chairman, a Treasurer, a Secretary, and a Committee of Members.
6. That all qualified Medical Practitioners be eligible for Membership.
7. That the Society shall also consist of Honorary Members.

The following Gentlemen compose the Committee and Office-Bearers:

Chairman—SAMUEL CARTWRIGHT, F.R.C.S.
Vice-Chairman—S. J. A. SALTER, M.B. Lond., F.R.S.
Council—H. CRAIGIE, M.R.C.S.; T. EDGELOW, M.R.C.S., L.R.C.P.; D. NAPIER, M.R.C.S.
Treasurer—A. COLEMAN, F.R.C.S., L.R.C.P.
Hon. Secretary—S. HAMILTON CARTWRIGHT, M.R.C.S.

37, CAVENDISH SQUARE, W.;
March 30th.

DEAR SIR,—In reply to your note dated March 23rd, I write to say that I have no wish to become a Member of the new Association.

And in declining the proffered compliment, I feel that I should give some at least of the grounds upon which my decision is based.

Its objects are said to be—

1. The establishment of an improved code of ethics. Personally, I do not believe that a high standard of thought and conduct is capable of being inculcated in the minds of those who have it not to begin with; while those who have it will gain little by its codification.

2. "The endeavour to encourage a higher educational standard, both general and professional, for those who may hereafter practice the special branch of Dental surgery."

I, in common with many others, believed that this work had been inaugurated, and was still being carried on, as witness the recent requirements of the College of Surgeons in the matter of an examination to test preliminary education, prior to students being admitted to the L.D.S.

But the work was commenced by, and is still being furthered by, men whose names I do not see among the office-bearers of your society, and whose names I do find upon the roll of the Odontological Society, and I prefer to leave the work in their tried and trusted hands, working upon a liberal basis, rather than confide it to a body, the list of office-bearers of which includes the names of some at least who have stood apart and have not at all times ungrudgingly gone with their comrades in this matter.

3. "The furtherance of modes of practice compatible only with the highest professional status."

To what in particular this alludes I fail to see; "modes of practice" which are worth anything are very likely to take care of themselves, and to stand upon their own merits, rather than upon the dicta of an association.

In its declaration of its objects, your association has, to my mind, failed to establish its raison d'être, and I should decline to join it on the ground that I hope to employ my time, if not more usefully, at all events, more to my taste.

Farther than this, there appear to me to be other grave objections to joining the association.

Whatever any one may say to the contrary, the L.D.S. diploma is the only one which indicates that the holder has received an education and an examination in the matters appertaining to our specialty. And, desirable as may be the extra year of hospital study which the M.R.C.S. implies, how much of general surgery do we keep up, and how far are we to be fairly entitled "competent surgeons," after ten years have elapsed from our having acquired the diploma?

An association which fixes its qualification for membership in a degree other than the L.D.S., and purposes to be going "to further modes of practice compatible only with the highest professional status," &c., is in its very existence a slight to the L.D.S., and I observe that, although this degree is held by at all events some of your office-bearers, these letters are not appended to one single name.

Before I could join your Association, putting all other questions aside, my own self-respect would require me to resign the chair and its emoluments which I hold at the Dental Hospital, because that is a school directly concerned in the training of students for the L.D.S-, and not for the M.R.C.S. And were I to displace the L.D.S. into a secondary position as a qualification for the Dentist, then, and not till then, I conceive that it would be consistent for me to endeavour to displace the Dental Hospital by the establishment of complete Dental schools at every general hospital; and this would be a natural outcome of joining your association.

So far, I have given only my grounds for personally declining to become an associate; a broader question opens itself up, however, in the influence for evil which the step you have taken may have.

Just now there is an extensive movement in the body of the profession, which has for its purpose progress in some form or another. The formation of a society proclaiming for itself a sort of superiority, instead of waiting till other people acknowledge its merits, must produce ill-feeling, and has, indeed, already done so.

In the face of the opposition which its establishment provoked; in the face of the remonstrances of many whose judgment and motives are above suspicion; in the face of the danger of a split, such as the Dental profession once had to struggle through, the promoters of the association might have gained in dignity by unselfishly withdrawing their scheme. Prejudiced I may be, but I for one cannot see that the results of the association, if there be any results, will be worthy ones. Its objects, if gained, surely are selfish objects, and would benefit, not the Dental profession at large, but those alone who presumably stand least in need of being benefited.

I am, yours faithfully,
Charles S. Tomes, M.A., M.R.C.S., L.D.S.,
Lecturer on Dental Anatomy and Physiology at the Dental Hospital of London.

To S. Hamilton Cartwright, Esq.

To the Editor of the 'British Journal of Dental Science.'

Sir,—In your able editorial article for the month of March, you express a decided opinion that the "inferior degree," alluded to in the *Lancet* of January 29th, is no other than the Dental diploma, and you think that at the George Street meeting a "deliberate insult" was given "to a large body of educated practitioners." It is impossible, I think, for any one to come to any other conclusion, and it seems to me that holders of that diploma who are members of the Odontological Society will not see with complacency any gentleman who attended that meeting elected to the Chair of the Society when by efflux of time it is vacated by its present very able and deservedly honoured occupier.

Believe me,
Yours very truly,
L.D.S., M.O.S.

March 15th, 1876.

A BREACH OF PRIVILEGE.

To the Editor of the 'British Journal of Dental Science.'

Sir,—In common with many members of the Odontological Society, I have seen with indignation the course taken by your Dental contemporary in publishing an account of the incidents occurring during the ballot at the March meeting. I venture to say that the publication of the name of a rejected candidate in the journals is unprecedented. In addition to the injury which may be inflicted upon the individual, the act is perfectly gratuitous and ungentlemanly; for whilst the unfavorable result of the election might perhaps imply merely that the candidate was in some small degree obnoxious to a proportion of the members, the publicity given to the occurrence affords his enemies an opportunity of throwing out unpleasant hints with effect. I trust the Council will not let this matter pass without action, and that they will distinctly declare that if reporters are to be admitted to the meetings it shall be on the condition only that they refrain from making public the private affairs of the Society. And, indeed, I cannot understand why the reporters, as well as the rest of the strangers present, were not called upon to retire during the voting, at the meeting to which I refer.

I remain, &c.,
A Member of the Society.

[It will be seen from our leading article that we view the "breach of privilege" in the same light as our correspondent, but in this instance the publicity will do the gentleman in question more good than harm, as it affords an opportunity for explanation.—Ed. 'B. J. D. S.']

To the Editor of the 'British Journal of Dental Science.'

Sir,—Permit me through the medium of your Journal to tender my warmest thanks to the gentlemen who voted for me at the Odontological Meeting on the 6th ult., especially to those who travelled long distances to do so; and also my grateful acknowledgment for the many letters received from sympathising friends commenting on the course of conduct adopted by my opponents.

Yours faithfully,
Frank A. Huet.

Manchester.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

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5. We cannot undertake to return communications unless the necessary postage stamps are forwarded.

Communications have been received from Charles Sims (Birmingham), Walter Campbell (Dundee), John Gould (London), Felix Weiss (London), F. H. Balkwill (Plymouth), "L.D.S., M.O.S.," "A Wasp," "G. H. H.," Andrew Wilson (Edinburgh), W. Spencer Watson, W. A. Hunt (Yeovil), Thomas Fletcher (Warrington), John Tomes, John O'Duffy, James Merson, G. Parkinson, Henry Sewill, A. Coleman, W. S. Savory, C. S. Tomes, J. H. Kyan, J. S. Turner.

BOOKS RECEIVED.

'L'Art Dentaire.'
'Rivista Internazionale.'
'The Dental Register.'
'Le Progrès Médical.'
'Johnston's Dental Miscellany.'
'Liverpool Mercury.'
'The Freeman's Journal.'
'The Scotsman.'
'Giornale Di Corrispondenza pei Dentisti.'
'The Country.'
'The Dublin Evening Mail.'
'Chemist and Druggist.'
'The Pennsylvania Journal of Dental Science.'
'Sussex Daily News.'
'The Medical Press and Circular.'
'The Students' Journal and Hospital Gazette.'

ERRATUM.—In the March number, page 141, line 20 from bottom, *for* Sig. Luigi Martini *read* Dr. Luigi Martini.

British Journal of Dental Science.

No. 239. LONDON, MAY, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London Ophthalmic Hospital, and to the Central London Ophthalmic Hospital.

(*Continued from p.* 121.)

Subsection 2.—*Injuries and the Lodgement of Foreign Bodies.*

The antrum can only be injured from without by very crushing and violent blows (by which the upper jaw and its soft coverings are much bruised and lacerated), by gunshot wounds, or by penetrating wounds with a sharp or pointed weapon. Fractures of the upper jaw, laying open the antrum, are serious rather on account of the injury to the bone and the shock to the system, than in reference to implication of the cavity. Nevertheless, there is some risk of a troublesome suppuration in the antrum, complicating the principal injury, and a permanent fistulous opening may result. A case of the kind was recently under my care at the Great Northern Hospital, and was reported in the 'British Medical Journal,' Jan. 16th, 1875, as follows:

James C—, æt. 25, was kicked in the face by a horse ten years ago. While training the horse, by whipping it round in a circle with a long leading rein, the animal suddenly backed on him and kicked him violently in the face. He was knocked down, and when picked up the left side of his face was, as he described it, lying on his left shoulder. There was still evidence that both jaws must have sustained compound comminuted fractures; the nose was split open nearly vertically, and the anterior wall of the antrum broken into through the integuments of the cheek. The contraction of the cicatrices formed during the healing of these injuries, resulted in a drawing down of both the left eyelids to a point above the middle of the inner side of the nose, so that the patient was unable to open his left eye by any movement of the muscles attached to the eyelids, though when the palpebral aperture was dilated by the fingers, the eyeball was seen to be perfect, and the sight of the eye itself was unimpaired. The jaws were much distorted, and could only be opened to a limited extent. Nevertheless, mastication and articulation could be very fairly performed. In the middle of the left cheek was an opening communicating with the antrum, and the skin surrounding this opening was drawn down towards it in the form of a funnel-shaped depression.

The above description applies to the condition of the patient when he was admitted into the Great Northern Hospital, in July, 1874, for the purpose of having an operation performed, designed to restore binocular vision.

Having several times successfully operated for ptosis, by removing portions of the upper eyelid, and so bringing the eyelid within reach of the fibres of the occipito-frontalis, Mr. Watson proposed a series of plastic operations in which this principle might be rendered available.

On July 16th, chloroform having been administered, a flap was taken from the upper eyelid, of a somewhat elongated oval form, and inserted in a raw surface left by making a free incision below the lower eyelid, dissecting the skin upwards, and freeing it by making deep cuts into the hard, fibrous, cicatricial tissue, by which it was bound down to the upper jaw. The edges of the wound in the upper lid were then brought together, and the flap retained in its new position below the lower lid by sutures. The whole of the parts operated on were then covered by a layer of cotton wool saturated with styptic colloid. In this operation care was taken to dissect up the lachrymal sac with the inner end of the eyelids. An attempt was made to draw up the flap thus formed, without dividing the lower end of the sac and the commencement of the nasal duct, but this was found to be impossible; the lower end of the sac was, therefore, cut across, and the divided ends, separated in the act of drawing the eyelids into their new position. Notwithstanding that a portion of the transposed flap underwent considerable shrinking, and partially sloughed, the ultimate effect of this operation was a decided gain. The inner canthus was raised half an inch higher than the outer, which was before the higher of the two; and there was a slight power of raising the upper lid, so that the patient could see before him when he held his head up and threw it back slightly.

It was, however, necessary to raise the outer canthus; and, in order to do this, on August 26th an operation of a precisely similar kind was performed at the outer side of the eye, the flap being taken from the skin and subcutaneous tissues, including muscle, of the outer half of the upper eyelid, and this flap transposed to a gap made by a horizontal incision below the outer two thirds of the lower lid. Styptic colloid was applied to these incisions as in the former operation. The result of this operation was to increase very considerably the power of opening the eyelid, the level of the palpebral aperture also being very much raised; but the outer half of the upper eyelid remained everted slightly, and this unsightly effect was subsequently remedied by removing the protruding portion of the conjunctiva and a small piece of the tarsal cartilage.

On October 14th, the following operation was performed for the closure of the antral fistula, which lay at about the middle of the cheek, in a hollow, close to the side of the nose. Three flaps were taken from the skin of this hollow by dissecting them from the central aperture outwards; the two lowermost flaps were then brought together by quilled sutures, so that their deep surfaces were in contact, in the form of a raised eminence, over the site of the depression, and the uppermost flap was attached to a point above them, near the root of the nose, its lower edge being also attached by sutures to the upper borders of the two lower flaps. Styptic colloid was then applied in the way usually employed at the Great Northern Hospital.

On the fifth day after this operation the crust of colloid fell off, and the flaps were to be seen in good position, and in great part united by primary union. On the fifteenth day the wounds had become completely healed, and no trace of the fistula remained. A prominent nodule of redundant skin marked the union of the two lower flaps by the quilled suture. When seen some months later no trace of the fistula remained.

Mr. Hutchinson had a case of transverse fracture of the jaw in the London Hospital. Both antra were laid open, but a good recovery was made without exfoliation of bone. Several similar cases are recorded in Mr. Christopher Heath's work on 'Injuries and Diseases of the Jaws,' pp. 55, 56.

In the case of gunshot wounds, the missile is sometimes lodged in the antrum, and it is then a point of importance to extract it as soon as possible. Fragments of broken bone may, in some cases, have to be removed in order to reach the foreign body, but it is of course very desirable to avoid this if possible; the bones being, in this region, even when much displaced from their normal position, more favorably circumstanced for recovery without necrosis than in less vascular parts of the body. The foreign body may, however, remain embedded in the cavity of the antrum for a long period after the receipt of the injury without its presence being suspected, as may be seen from the following case reported in the 'Edinb. Med. Journal,' September, 1856, and 'Trans. Odont. Soc.,' 1857-60, p. 47.

William Roberts, a fisherman, had the coarse breech of a common musket in the antrum, where it had lain unsuspected for eight years, though the patient had been under various doctors, and though symptoms were thoughout present such as to warrant an effective search for some foreign irritant. It was removed by Dr. Fraser, of St. John's, Newfoundland, and weighed a little over four ounces. It was quite oxidized. Its transverse portion measured 1½ inches; in breadth it was ⅝ of an inch in one part and ½ an inch at another. That portion which screwed on to the breech measured 2⅝ inches in length and ⅝ of an inch in breadth.

In the museum of Guy's Hospital is the model of the breech of a gun, which had been lodged in the face of a man for twenty-one years. "The patient was shooting birds when the gun burst; the right eye was destroyed, and through the roof of the orbit the brain protruded. At the end of 1856 he was suddenly seized with symptoms of choking, as from a foreign body in the throat, and, on putting his finger in his mouth to remove it, he drew forth the breech of a gun, much oxidized and covered with purulent matter. It is supposed that the piece of iron broke through the floor of the orbit, and had been lodging in the antrum ever since."

Bordenave (Mémoires de l'Académie Royale de Chirurgie," tom. v, p. 255) records an instance of a nail, fron a gun, having entered the antrum and caused a fistula in its walls.

Louis records, in the 'Mémoires' (tom. iv, p. 380), the case of an ecclesiastic, who had a fistulous opening in the cheek from which a foul-smelling discharge escaped. Injections made through this opening passed into the mouth, through the socket of a molar tooth, which had been previously extracted. This part of the alveolar process was carious; one of the injections forced out through this socket a pledget of lint which the patient had some time before thrust into the sinus, and of the presence of which he was not in the least aware. This pledget of lint had been the cause of the mischief.

The late Mr. Holmes Coote, in his article on injuries of the face (in Holmes' 'System of Surgery'), relates the following somewhat similar case. "A young man consulted Mr. Lawrence in consequence of his suffering from discharge of the left nostril, accompanied with enlargement of the corresponding superior maxillary bone, which was soft and yielding. A probe introduced into the socket of the second molar tooth passed readily into the antrum, and allowed the escape of some thin seropurulent-fluid. In the course of a few weeks a small bit of lint escaped from the antrum through the socket of the tooth, the discharge from the nose ceased, the cheek regained its normal size, and the man recovered. It turned out that the lint had been used, steeped in laudanum, for plugging the socket and relieving a temporary attack of face-ache."

There are, therefore, dangers often of an unexpected kind, in the use of appliances apparently the most simple, in some instances leading to results as formidable as those of most crushing injuries.

Insects have found their way into the antrum. Thus Mr. Heysham, of Carlisle, relates that he removed a dead insect, more than an inch long and thicker than a common crow-quill, from a woman's antrum. The patient was sixty years of age and had been a great snuff-taker; and though there were no symptoms of abscess or of any other disease of the antrum, the pain referred to this region was so severe that

Mr. Heysham was induced to open the cavity with a trocar and syringe it out through the aperture, the result being that on the fifth day the insect was removed, and a few hours after two others followed (see Mr. Lane's Ed. of Cooper's 'Surg. Dict.,' vol. i, p. 252).

Bordenave ('Mem. de l'Academ. de Chir., p. 381) relates a case in which several whitish worms, together with a piece of fetid fungus were discharged from the antrum after an opening had been made in it for an abscess. Deschamps also describes a worm like the Ascaris lumbricus as having been found in the antrum of a soldier whose body he was dissecting; it was four inches long. Probably in all these cases the worm was the Linguatula tænioides, which is occasionally found in the frontal sinuses.

(*To be continued.*)

NEURALGIA OF THE FIFTH PAIR.

By W. A. N. Hunt, Esq., M.R.C.S., L.R.C.P. Lond.

Last week in looking over my note-book I stumbled upon the following case, presenting many interesting characteristics and specially instructive from the length of time over which the history is extended.

Of course, to men in practice the features of this case are familiar enough, but the perusal of them will repay the student. Some details may at first sight appear irrelevant, but these will be alluded to in some remarks at the end of the case. The patient's case is a history of great suffering occurring at different periods for many years; much medical skill had been brought to bear upon it fruitlessly, every therapeutic remedy tried without avail; in short however some may sneer at specialism, it required the knowledge of the specialist to point out the *cause* and apply the *right* remedy.

July 25th, 1869.—Miss ——, æt. 50, came to me suffering from severe neuralgia of the fifth pair of nerves, wishing to know if it were possible that her teeth could be the cause, which she at the same time said were perfectly sound and healthy.

Previous history.—Had never enjoyed robust health, was always a pale, anæmic-looking girl in childhood. When 13 or 14 years of age she had some inflammatory attack in the right eye; and afterwards for a considerable time she experienced a difficulty in raising the upper lid, slight ptosis in fact, or in her own words, "the eye seemed contracted, and she felt as if she wanted to lift the lid with her finger." During the inflammation that preceded this, leeches were applied, and *severe* bleeding occurred from the bites, which was not arrested until a good deal of blood had been lost.

At the age of 17 she was bled to syncope during an illness according to the medical fashion of that day, and to these two losses of blood she attributes very much of her subsequent ill-health and debility.

She has been subject to neuralgia since the age of 17. On referring to my father's case-book, I find the following note as far back as February 16th, 1846:—"Extraction of first right superior molar, a remarkable case of ossification of the pulp of the tooth, attended with neuralgic suffering of a year and a half's continuance, previous to the extraction."

The patient at the present time well remembers this operation, and says she "was wonderfully relieved by it." This tooth was not affected by caries, and the pulp ossification was guessed at solely from slight pain following hard percussion.

In 1850 patient had another severe attack of neuralgia, for which a tooth was removed and relief was afforded for some time. I can find no note here as to the state of the pulp.

In 1858, in November and December, patient was treated for exposed pulps.

In 1859 she had a severe attack of jaundice, suffering from great sickness and constipation; the cause was referred by Dr. Symonds, of Clifton, to organic thickening of the ductus choledochus, a condition which it is believed exists at the present time, and which from time to time causes constitutional disturbance attended with local pain (*i. e.* in the region of the gall bladder), nausea, and vomiting, and sometimes with constipation. At these times neuralgia is often present with great pain in the head coming on as the local disturbance abates.

Three of her molar teeth are in my collection that have been removed and preserved, but without any special history with them, except that outwardly they were healthy teeth, and were removed to give relief to neuralgia, and the patient remembers that relief followed each operation. The neuralgia had been nearly always on the right side of the head, and affecting the first and second division of the fifth chiefly. Some years ago patient had inflammation in the auditory canal of the right ear, with much suffering at the time attended with a copious discharge, and followed by deafness. Coincidently she suffered exceedingly from neuralgia on the right side of the face. Since this the secretion of wax in the right ear has always been deficient, and the sense of hearing impaired. Has for years lived on a dry, healthy, elevated spot.

Present condition, July 25th, 1869.—Suffering great pain on right side of face in the first and second division of the fifth nerve, Face hot and suffused. She can map out accurately the chief branches of the nerve with the point of her finger; she draws my attention particularly to a pain running down the right ala of the nose; just before the paroxysm is over there is often a sensation as if a drop of cold water were trickling down the nose outside.

During a paroxysm relief is afforded by firmly closing the mouth, and thus exerting pressure on the teeth; as soon, however, as the pressure is relaxed the pain returns *worse* than before. Patient refers pain to the third right superior molar, apparently a healthy tooth. She was put under nitrous oxide and the tooth removed; on cutting the tooth open the whole pulp, with the exception of a very small portion, was found ossified.

For weeks previously she had been ringing the changes with all the nervine tonics, local applications, and constitutional remedies that could be thought of, the pain meanwhile steadily getting worse.

Exhaustion of any kind is quickly followed by neuralgia, and patient finds then that stimulants afford the surest means of giving relief.

Patient was slightly hysterical just before and just after the operation.

July 27th.—Patient better, but not entirely relieved; refers her pain now to the second right superior molar, and also for the first time complains of great pain over the left side of the face, the lower left third molar is loose, and its periosteum inflamed; she complains of earache in the left ear.

31st.—Pain still continues, but with greatly diminished fury; she was at once put under nitrous oxide, and the right upper second molar and the left lower wisdom tooth was removed. No caries in either tooth; on being slit open the pulp chamber in each was found to be occupied with a bony mass, just as in the former ones. Great relief followed these extractions. Patient then went abroad for change and rest.

December, 1869.—Patient returned to England enjoying better health and much greater freedom from neuralgia, this irritation of the right fifth nerve has gradually subsided, and since 1870 she has been entirely free from her old enemy.

I have constantly had opportunities of observing her, and up to February, 1876, she has continued perfectly free from neuralgia, although her general health is bad.

A few remarks on this case I should like to offer in a future paper.

Yeovil.

ON CARBOLIC ACID.

By James Bate, Esq.

"In considering the merits of a new agent, we should not altogether lose sight of older practice which has been successful, but if the new will not at all improve upon our old notions, well and good, but we should not too hastily turn aside from old remedies which have answered for the sake of a new agent, until the agent has stood the test of experience." These words were uttered by Mr. Cartwright nearly eleven years ago in the discussion on a paper read by Mr. Woodhouse on the "Use of Carbolic Acid in Dentistry." These remarks will hold good now, for we are more frequently than formerly hearing of new remedies being extolled to the detriment of old servants.

I have tried most of these new remedies, but very quickly thrown them aside, not finding them as useful as they have been represented, and I am of opinion there is nothing can equal carbolic acid. I trust you will pardon me for again troubling you on this subject, but as this useful adjunct to the 'Dental pharmacopœia' *has* stood the test of time and experience, I wish to say a few more words in its favour. I have used it ever since I last wrote upon it, exclusively, and in the majority of cases I have been successful. Of course I have had my failures, if not I should have discovered the much-desired panacea for all the ills that teeth are heir to. For toothache from exposed nerve not complicated with periostitis I consider it invaluable, often relieving the pain as if by magic, but before applying the remedy the cavity of decay must be cleared and dried out, and the nerve itself thoroughly exposed. I also find it of great service in an exposed and suppurating nerve. I apply the acid on a dossil of cotton wool directly on to the diseased nerve (the cavity having been treated as in the former case), then take another portion of wool dipped in a solution of gum sandarach, wash this in cold water for a minute, it will then be able to be rolled into a ball and better able to be manipulated; with this seal up the cavity, allowing it to remain for a day; the pain, if any, generally subsides in an hour; should it not, I have invariably found by removing the sandarach dressing and substituting a smaller piece, and not pressing it in so tight, relieve it. My firm belief is that the cause of pain in the majority of cases is owing to too great a pressure being made to retain the dressing in the cavity. I renew the application the next day, and continue to apply a fresh dressing of the acid until a healthy action is brought about. When this has taken place, I temporarily fill the tooth with gutta percha, and if all goes on well I allow it to remain for a month; prior to putting in the filling I place some more acid, which I allow to remain. At the end of the month I remove the filling and proceed to refill with a permanent stopping with a non-conducting substance, such as a thin piece of ivory capping the nerve, and here let me state I find nothing so good as *ivory*. When I have removed the temporary filling I invariably find the cotton wool perfectly dry. In alveolar abscess I have found carbolic acid invaluable, and the abscess is much more amenable to treatment with it than with any other remedy I have tried. I bathe the cavity of decay with the acid *undiluted,* and inject the sinus at the apex of the fang with diluted acid, one of acid to twenty of water. Again, carbolic acid will be found an excellent medium for applying arsenic in the destruction of the nerve; it causes little or no pain. There is another use to which I think carbolic acid is invaluable, and that is when nausea is occasioned by artificial teeth, when first placed in the mouth, or when taking a model, gargle the throat with five or six drops of the acid in a wineglassful of water, and the nausea will subside.

Tiverton.

PERMANENCE OF OXYCHLORIDES.

We so frequently meet with differences of opinion on this point, even when the same preparation is referred to, that a series of experiments have been undertaken to attempt to discover the cause of variation. There is, undoubtedly, a great difference in different mouths, and therefore as oxychlorides are at present, perfectly uniform results cannot be expected with the best preparations. The worst results, so far as solubility is concerned, were obtained with the compound mixed thin and either not protected at all, or when a spirit varnish was used, as the latter penetrates to a greater or less depth, and so far as it does penetrate prevents the hardening of the oxychloride entirely, by protecting the oxide from the action of the solution. The solubility was also considerably increased by want of thorough condensing, any irregularity in texture and hardness causing rapid disintegration. It would appear that the best results are invariably obtained by using no more liquid than is really necessary to keep the mixture workable until the plug is finished, and to spare no pains in thoroughly packing and condensing as soon as the plug is hard enough to bear it, and before it becomes friable under heavy pressure. Out of a number of different protecting varnishes tested none gave results approaching to a pasty mixture of wax and chloroform which gives a perfect watertight face with a fine polish under the burnisher, without interfering with the setting of the oxychloride immediately under it.

Attention to these simple points will, as a rule, double the average permanence of any oxychloride exposed to the action of the fluids of the mouth. It would appear, so far as present experiments go, that the destruction of oxychloride is not caused by an acid reaction in the fluids of the mouth as has generally been supposed; a good oxychloride will resist the action of either organic or inorganic acids fully as well and for as long a time as the enamel of any living tooth.—Thomas Fletcher.

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

(*Continued from p.* 177.)

On Additions and Repairs.

Little space is devoted by the text books to the subject of adding to or repairing old pieces. It is either considered of too little importance or supposed that the methods laid down for making new work will be sufficient indication of how to deal with such cases.

Yet repairs and additions form an important item in every practice, if well done give great satisfaction to the patient, and differ from new work in many important points as to the modes of procedure to be adopted towards them.

In gold work, the first and most important of these is, that, when about to add to an old piece, the model must be taken with the piece to be added to in the mouth. This must be taken from the mouth in the impression, into which the plaster must be poured with the plate still there, so that when the model is drawn the piece will appear on it, holding exactly the same relation there to the gaps to be covered, that it does in the mouth.

A little consideration will show us the necessity for this. For many years I used to take a model of the mouth, strike up the new piece of plate by it, and fit it to the old one on the model so as to make one piece as nearly correct in fit as possible; sometimes having to cut off all the pins, &c., from the old piece and strike both together. This was altogether wrong. The old plate cannot be got down on the plaster model like it is in the mouth. The first being of a uniform and tolerably hard consistence; the second being composed of, the teeth, very hard but more or less movable bodies, and the parts covered by mucous membrane which are of variable softness.

We must not interfere with the fit of the old piece if it is comfortable; but if we are to undertake the trouble and responsibility of a new fit, we shall save little in labour or material by restriking the old plate, and had better make a new piece at once. Let us suppose that a patient presents himself under the following circumstances:—He is wearing a gold plate on one side of his mouth, supplying substitutes for the right upper lateral and both bicuspids (see Fig 12).

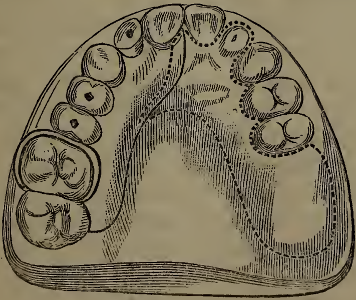


Fig. 12.

The right molars have been long absent; but were not supplied when the plate was made from reasons of economy.

The crown of the left lateral having broken off from decay, he now wishes all the deficiencies to be restored. The clasp around the molar being opened to permit of the easy withdrawal of the plate, a model is taken with the piece in the mouth, as previously mentioned. After the plaster cast is poured and drawn, the plate is removed whilst it is dipped, but replaced previously to casting it in sand for the zinc dies. Any overhanging parts likely to make drags being freely waxed up. A piece of gold plate is now cut out by pattern so as to strike up to the dotted line on the model (see Fig. 12), thus overlapping and fitting the old plate. The latter is now loosened from the model which is trimmed until it will easily remove, the teeth are taken off it, and the plate is cleaned. The two pieces are to be placed in position on the model, and cemented together so firmly that in moving they may run no risk of being shifted. They may now be placed in an investment of plaster and soldered. I say may be placed in plaster because it is much quicker and cleaner to do it in clean casting sand, but it requires more care; and some experience had better be acquired in soldering in sand alone with smaller matters before attempting such an important job. The completion is to be carried on as of a new piece of which half is already done.

We will now proceed to the consideration of cases where a single tooth or isolated teeth require to be added to the plate. It frequently happens that there has been a band or collar round the neck of the absent tooth; before taking the model this must be cut away and the plate filed back until its edge is flush with the gum in the mouth. It is better not to attempt to let the plate of addition rest upon the gum so as to bear any of the pressure of the piece. The plate is already comfortable and large enough to bear the strain of mastication thrown upon it, the addition will probably not make an appreciable difference; the new tooth or teeth are wanted for appearance, if front teeth, or if out of sight, to prevent food getting under the plate incommodiously. The importance in expedition to the patient, who has often, in the mean time, to face the world with unsightly gaps, is greater than will be recompensed if we attempt great accuracy by striking up such small pieces of plate. It will be sufficient if the gold added lies approximately close to the gum without resting upon it at all. This can be obtained by cutting a piece of gold to fit by a lead pattern, so as to overlap the old piece a little, and bending it with pliers until a tolerably accurate fit is obtained. The patch is laid on the plate on the model and the two securely stuck together with resin and wax (the sticks sold by Messrs. Ash for mending broken models, &c., answer very well). They are then lifted off together and soldered on sand. Soldering on sand has been before alluded to, and as it requires some precautions it will be described a little more fully.

A handful of light moist sand, just in a state to cast with, is deposited in the hollow of the casting coke. The two pieces of gold to be soldered together are placed upon it, having been previously stuck together in their right relative positions, as previously spoken of. They are gently pressed into the sand so as to be supported underneath, everywhere steadily, care being taken not to disturb their relative positions. The sand is pressed down around them so as not be blowing loosely about when the blowpipe is used, and none is allowed to remain on the upper surface. The flame is now at once applied with the blowpipe until all the cement has disappeared. With a very light hand place a piece of No. 1 solder on the most convenient part of the joint, but put no borax; this must now be run with the blowpipe so as to hitch the two together. If borax were used it would shift the pieces in rising when heated, sand not being strong enough to resist it. This is the point in soldering in sand, which requires more care than soldering in plaster; it is soon learned, and the advantage in time and cleanliness only needs trial to be appreciated. After hitching one point with solder, borax may be freely applied, and the soldering completed. This method can be used in almost all cases where two pieces of gold have to be joined in exact relative positions, such as mounting clasps, &c.; but not in putting up flatbacks, as it is not convenient for the gradual heating they require.

The deficiency of the base plate in the gap having been supplied a tube tooth can be mounted on a pin in the usual manner.

If, however, the place of an absent tooth is to be supplied by a flatback, a different proceeding is more expeditious and satisfactory. The tooth is chosen, backed with gold, and fitted to the gum, and adjoining teeth in the mouth.

A piece of modelling wax, such as is ordinarily used in vulcanite work, the size of a hazel nut, is softened and pressed into the gap in the plate in the mouth, so as to take the impression of the gum; and whilst still there, the backed tooth is pressed into it to occupy its correct position. The plate carrying the wax and newly backed tooth is removed and invested in plaster for soldering. When set, pour boiling water upon it to remove the wax. The tooth will now be in its right position relatively to the plate, but between the two is a gap containing the plaster model of the gum.

This is usually very small, and a little semicircular piece of plate is cut out and fitted so as to drop into the void space. The whole is to be warmed up gradually, and patch and tooth all soldered together at one heating. A little care is necessary to let the solder hitch the little loose piece of gold to the plate first, before the solder attaching it to the tooth runs; as being very small it is apt otherwise to shift up towards the tooth.

ON THE NEW ATMOSPHERIC DISCS.

By J. J. Musgrave, Esq.

Will you allow me to ask through the medium of your valuable journal if any gentlemen will be so kind as to give their experience in the use of the "New Atmospheric Disc," for I do not think the subject has been sufficiently opened up. I have tried them in several instances and in one or two cases they have not answered, not from any want of adhesion on their part, but the plates seem to rock backwards, and forwards, and sideways, making the patients complain of *an unpleasant sucking,* as they term it. Taking, for instance, an upper suction case, with the disc adapted carefully in the centre of the flattest portion of the palate, I have noticed that no part seems to rest on the gum except the disc, which seems to form a fulcrum for the plate to rock on like a cradle. In one case, a V-shaped mouth, I adapted two discs, one on each side of the palate, with more success than in the other cases, preventing a good deal of the motion, but even in that case the plate dropped about $\frac{1}{20}$ of an inch, quite enough to cause discomfort. Hoping that some way may be found of adapting them satisfactorily and improving their durability, which at present is not very great, I shall go on experimenting a little longer, and shall be glad to hear of the experience of others.

4, Nelson Place, Mall, Clifton.

Chemical Department.

SOME EXPERIMENTS WITH PALLADIUM.

One part by weight palladium and 5 of fine silver make a tough, malleable alloy, with a slight tinge of pink. This alloy might possibly be useful for some classes of plate-work, especially if faced with pure palladium in the same manner that dental alloy is now faced with platinum. Filings are a distinct pink colour, amalgamate readily with mercury on the surface only, but are so hard that the mercury does not penetrate, and the filings remain hard and granular.

Palladium 1, silver 5, tin 1, more brittle, similar as an amalgam to the above.

Palladium 1, silver 5, tin 2; a slight improvement on the last, but unfit for amalgam, and very slow in hardening.

Palladium 1, tin 5, silver 3, works fairly, but very dirty in the hand, and does not retain its form under water; sets quickly.

Palladium 1, tin 5, silver 6; no appreciable difference from the last.

Palladium 1, tin 5, silver 3, gold 1; dirty, amalgamates with difficulty, and only in the presence of acid; does not retain its shape under water.

Palladium 1, tin 5, silver 6, gold 1; practically the same as last.

Palladium 1, tin 4, showed no signs of hardening in twenty-four hours.

The above experiments were made with metals chemically pure, and appear to show that the behaviour of palladium in combination is distinctly different from that of platinum under similar conditions, and that its presence is a disadvantage rather than otherwise. It is not generally known that palladium is present in all samples of commercial fine silver, and that to secure its absence it is necessary to reduce the silver from a salt, instead of cupelling in the ordinary way.

As none of the alloys referred to show any practical advantage as amalgams either in working or packing, no expansion or contraction measurements were taken. No experiments were made with cadmium, which, notwithstanding its former condemnation, appears to be coming again into use. If this metal could be protected by alloying, so a to deprive it of its offensive taste and liability to form a strongly coloured sulphide, it might prove of value, but the addition of gold and other metals electro-negative to it appears to cause a deterioration rather than otherwise; and until the case has been proved in the mouth practically for or against the cadmium alloy now sold, it is a waste of time to attempt further experiments with alloys containing it.—Thomas Fletcher.

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From March 1st to March 31st, 1876.

Extractions	Children under 14	395
	Adults	552
Under Nitrous Oxide		305
Gold Stoppings		225
White Foil ditto		21
Plastic ditto		356
Irregularities of the Teeth treated surgically and mechanically		42
Miscellaneous Cases		214
Advice Cases		115
Total		2225

James Merson,
Dental House-Surgeon.

LIVERPOOL DENTAL HOSPITAL.

The Annual Meeting of the Friends and Subscribers of the Liverpool Dental Hospital was held on Monday, the 28th February, in the Mayor's Parlour, Town Hall, Liverpool. It was the largest and most influential Meeting which had ever been held in connection with the Hospital. His Worship the Mayor (Lieutenant-Colonel Thomson) occupied the Chair.

Mr. Councillor Campbell read the fifteenth Annual Report, which showed that the number of admissions for 1875 was 5867, or an increase of 404 over the admissions of the previous year. The practice of the Liverpool Dental Hospital being now recognised by the Royal College of Surgeons in connection with the curriculum required for the Diploma in Dental Surgery, Law 2 of the Institution is now in operation, viz. "That the Hospital shall be a School of Practical Dental Surgery, open to all students of Dentistry, under such regulations as shall be determined by the Committee of Management." The Committee announced some important changes in the Hospital Staff:—Mr. W. J. Newman, the Founder of the Institution, and Mr. R. E. Stewart, Senior Dental Surgeon, have been appointed Consulting Dental Officers to the Hospital; whilst Messrs. E. J. M. Phillips, T. F. Austin, and E. A. Morgan, have been added to the Dental Staff, with Mr. C. T. Stewart as Assistant Dental Officer. The Committee have decided upon securing permanent premises for a new Hospital, which will cost about £3000.

British Journal of Dental Science.

LONDON, MAY, 1876.

We understand that a meeting of the Executive Council of the Dental Reform Committee will be held at 40, Leicester Square, on Monday, May 15th, and cannot refrain from expressing a hope that those who have to act thereon will take a little pains previously to make themselves acquainted with the history of the movement which has resulted in the formation of this Committee, and the objects for which it has been convened. After eight months' public discussion and writing upon the subject, it was somewhat singular to hear it stated at the first general meeting of the Committee "that many gentlemen present expressed themselves as uncertain of the objects which the Committee was intended to carry out;" and even Mr. Cartwright, who never loses an opportunity of sacrificing himself for the good of the profession, accepted the office of permanent chairman with the remark that he " was not aware of the intentions of the Committee, but if he could be of any use as Chairman he would be very glad to accept the post." This statement probably accounts for what those who do not see the self-sacrifice, are apt to consider the somewhat anomalous position of that gentleman in other places; but though such conduct certainly seems very heroic and magnanimous, it is not practical; and this Committee has some eminently practical and very hard work to do. We repeat, therefore, that we trust before entering upon their duties the members thereof will make themselves thoroughly acquainted with all past details. Mr. Dennant very justly said at the same meeting " the views and aims of the promoters of the movement might be pretty well understood from the pages of the Journal." We would therefore advise those who propose to take any active part in future proceedings to study carefully all that has been written on this subject since May, 1875, beginning at

p. 310 of our June issue for that year; and we would, moreover, commend this study, not alone to members of the Committee, but to others who, though not on the list, have shown an active interest in the movement, but are, we fear, a little too anxious to hurry steps that are all the more sure though they may seem slow, and to press matters prematurely on the consideration of the Executive Reform Council before that body has fairly settled down to the realisation of its duties and responsibilities. We would caution all real friends of Dental reform not to be too easily led away by the specious reasoning of some would-be leaders who do not allow their names to appear, but make use of others to effect their purpose.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Monthly Meeting, Monday, April 3rd, 1876.

Charles Vasey, Esq., President, in the Chair.

The minutes of the last meeting were read and confirmed.

The following gentlemen were nominated for membership:—Mr. Harry B. Gill, L.D.S., 62, Bow Road (Resident); Mr. Gilbert Mallet, Old Rectory, Newbury, Berks (Non-resident.

The following gentlemen were elected members:—Mr. Edmund Binns, L.D.S., 70, Linthorpe Road, Middlesborough (Non-resident); Mr. Edward Reading, 117, Castlereagh Street, Sydney (Non-resident).

Mr. George W. Field, having signed the Obligation Book, was formally admitted a member.

Mr. James Parkinson presented six numbers of the Microscopical Journal to the Library.

Mr. Charles James Fox said a case had come under his observation at the Dental Hospital that morning, which he thought presented some features worthy of examination by the members of the Society. At first he thought it was a case of fracture of the lower jaw, but after further examination and hearing its history, he was led to the conclusion that the division was the result of necrosis. There was absolute division of the jaw. Several gentlemen who were present at the time seemed to think there was simple necrosis of the alveolus only, allowing the upper teeth to move, but on careful examination with the finger, a separation was distinctly observable. Mr. Christopher Heath had seen and questioned the patient very closely, but could get nothing from him, except that he had had smallpox. Subsequently, however, it was ascertained that he had had a very bad attack of syphilis. The man distinctly denied that he was intemperate, or had had a fall or a blow when in a state of intoxication. At p. 21 of Mr. Heath's work on 'Diseases of the Jaw' a case was depicted which would fairly represent this one if the two sides of the jaw could be brought to unite as he hoped.

The President said he knew of one case of injury to the leg, where the patient utterly denied being addicted to intemperance, but it afterwards turned out that his occupation was to carry coals from a vessel to the wharf, and that he generally had a glass of beer every load, so that it was calculated he drank several gallons a day.

The patient was then brought in and examined by the members.

Mr. Charters White asked Mr. Fox if he intended to treat the case at all mechanically. A short time ago he himself saw a similar case, where the front of the jaw was necrosed, and a vulcanite frame supplying the missing teeth was fixed in, and kept the jaws in apposition. The whole of the symphysis was necrosed away for about half or three quarters of an inch, and necessitated some mechanical means to keep the jaws apart. The treatment was most satisfactory. The case arose from a blow.

Mr. Oakley Coles said Mr. Fox's case was one of exceeding interest, not so much from the special characteristics of the disease, as from the situation in which it had shown itself. The central fragment appeared to be quite detached, and the necrosis had commenced at the lower part of the jaw in the symphysis of the lower border rather than from the upper part. This was further borne out by the evidence that the gland on the left side was considerably enlarged and thickened. He had only seen one other case like it, and that was where the disease of syphilitic origin commenced in the gland and produced a fistulous opening below the jaw, and afterwards a piece of bone became necrosed in the border on one side of the jaw, on the lower side of the symphysis. He thought Mr. Fox would do well in the present case to leave it alone till the necrosed bone and the teeth came away, rather than to attempt to remove them, as in the removal probably an amount of irritation would be set up that would involve a considerably larger portion of the jaw than was at present the subject of disease. In these old syphilitic cases he believed, if the patient was put upon a course of iodide of potassium and the general health looked after, as soon as the bone came away there was great effort for reparative action, and ultimately a strong bond of fibrous union was established between the fragments of the jaw. Artificial appliances could then be placed with far better result than if the two halves of the jaw were kept separate at first.

Mr. C. J. Fox said he should be exceedingly pleased to receive any hints from gentlemen present as to the treatment of the case; but his own impression was, that he had better remove the projecting teeth, and then wait till the sequestrum was ready to be removed. As soon as possible he would make a plate to keep the parts together, and hope for some union to take place.

Mr. Turner thought the cause of the division of the jaw was muscular contraction, and that the two fragments were considerably approximated by virtue of the muscular power exerted upon them. If this contraction were allowed to go on unchecked, when the sequestrum was removed there might be considerable difficulty in regaining proper power over the muscles. It was bad practice to hurry the removal of the sequestrum. If an attempt was made to remove it by force, very probaly harm would be done; on the other hand, if it was not interfered with until it was thoroughly liberated, it might be removed with great advantage. Still, while they were waiting, a great deal of mischief would be going on. It did not seem to him advisable to remove the bone which was partially loose; but if any future mechanical appliance was contemplated, the sooner some arrangement was made the better for future success. If an internal splint were put upon the lower jaw to keep the fragments apart, they would be more easily retained in their true place when the sequestrum was removed.

Mr. Coleman also said he should feel some disinclination to remove the teeth as Mr. Fox suggested. The objection to removing the sequestrum too early was that portions of the periosteum might come away with it, which it would be necessary to retain for the formation of new bone. He could not agree with Mr. Oakley Coles in the view he took with regard to syphilitic necrosis. His own opinion was that in cases of syphilitic necrosis there was a very small amount of reparative action.

Mr. Oakley Coles said he had spoken of the reparative action of the fibrous tissue rather than the bone.

Mr. Woodhouse said, during the last three or four years he had met with two cases of fourth lower molars on the left side of the jaw. The first was that of a lady, in India. She suffered considerable pain, inflammation set in, and suppuration took place, which relieved itself by a sinus at the angle of the jaw. Pus flowed to such an extent that she was obliged to wear a pad. After two years she came to England and consulted Sir William Fergusson, who brought her to him (Mr. Woodhouse). The lower wisdom tooth on the left side was apparently perfectly healthy, but it was thought better to extract it in order that the nature of the disease might be ascertained. The posterior fang recurred somewhat, and broke in coming out. On probing for it he found an opening to a cavity behind the wisdom tooth at the angle of the jaw, and could trace the crown of a tooth there. He extracted it without the slightest difficulty, for it had not the least hold on the jaw. Within a week the discharge entirely ceased, and had never returned. About a year afterwards he had another case of a fourth molar in a lady's mouth. The tooth had made its appearance just through the gum. He did nothing with it then, but about a week ago he saw it again, and both it and the true wisdom tooth were decayed. On attempting to extract it he found that the anterior portion of the grinding surface had tucked under the true wisdom tooth. He had impressions of both cases, and wished to present them to the Museum.

Mr. Mummery described a case which was brought under his son's notice about a year ago. There was considerable stiffness in the jaws, which could only be separated to a very slight extent. The gum was very inflamed and thickened behind the second molar. Free lancing with excision of a portion of the gum gave great relief. There were three fistulous openings, and a probe introduced into the upper opening passed upwards and backwards in the direction of the lower wisdom tooth, which after the lancing could just be detected with a probe. The extraction was effected with difficulty, and within a fortnight the fistulous openings had all closed up, and the patient was entirely free from pain.

Mr. Felix Weiss, L.D.S., then read a paper on "The Retarded Eruption and the Extinction of Wisdom Teeth. Case of Abscess with Fistulæ from buried inferior Dens Sapientiæ, lying horizontally below the Alveolar Margin, &c.," of which the following is an abstract.

Mr. President and Gentlemen,—Running through the whole range of Dental physiology, there are, perhaps, few subjects that present more interesting matter for investigation than the development and eruption of teeth; and if one tooth more than another may be cited as presenting an individual claim to be considered separately, it is the dens sapientiæ.

Let us briefly recapitulate the conditions under which the wisdom tooth, as it is called, makes its appearance, and the results occasionally met with where this tooth cannot take up its proper position.

Dentition having proceeded to the eruption of the second molar, the maxillæ are now fully occupied, and a pause takes place. We wait for the elongation of the jaw backwards. If all be then favorable, another molar is added to the circle; but the eruption of this third molar is not generally unattended with pain. We have frequently a series of disturbances, the least of which is a certain amount of suffering to the patient, at times sufficiently distressing to call for professional attention; and upon examining more minutely the results, we perceive that the second molar standing in front and the termination of the alveolus behind, the wisdom tooth not having a predecessor, and its development being carried on beneath the base of the coronoid process, when the time arrives for its eruption, it has no space reserved for it, and in the generality of cases it cannot take its place without a certain amount of suffering, more particularly in the lower jaw: nor is this limited only to the part affected; it extends to the surrounding structures, causing the neighbouring muscles to become more or less rigid, and setting up inflammation, attended sometimes by suppuration, the pus not unfrequently burrowing around the periosteum of the jaw, giving very much the appearance of necrosed bone, and, indeed, occasionally leading to necrosis of the jaw. Nor is this the only annoyance resulting from the attempted eruption of the third molar. Frequently the tooth takes a different direction, and remains buried in the alveolus, or even ascends the ramus of the jaw, or becomes impacted against the second molar.

If we continue our observation, we shall also find that this particular tooth varies not only in shape, but also in size. On the right we may have a perfectly developed molar; on the left a cubic-crowned tooth, resembling the lower bicuspid. But that which more than anything else distinguishes these strangely variable teeth is the irregular periods at which they are erupted, and that they are in many instances absent altogether. Feeling that some reliable statistics on this interesting subject would be desirable, and having failed to discover any record that can guide us to a true estimate of the number of wisdom teeth absent in a given number of cases, I some time ago began to draw up such a record. The plan I adopted is very simple. I commenced by excluding all cases under the age of twenty-six, taking particular care that the wisdom tooth had not been extracted, and where any doubt existed did not register the case at all.

According to my observations,
Of 312 persons over twenty-six years of age,
    52 had deficiencies of wisdom teeth;
    29 had none at all;
    44 had deficiencies in upper and lower;
    76 had deficiencies in upper only;
    32 had deficiencies in lower only;
    21 with deficiencies were over fifty years of age;
In 312 persons 304 wisdom teeth were absent.

That the wisdom teeth are erupted late in life we have plenty of evidence to prove, but that they are sometimes absent altogether I am fully persuaded, and that they take the first place as absentees my late examinations seem to indicate. I have seen several mouths where the third molar has been cut after the age of seventy, and in one case a patient had attained his eighty-fourth year. I have only been able personally to record a deficiency of laterals in four instances, and in two of these the teeth were cut later in life, after wearing artificial work.

I have particularly noticed that wherever any of the fourteen permanent teeth are absent, the wisdom teeth will be found to be missing also. In the table of deficiencies of wisdom teeth already quoted, I have registered two instances where the superior lateral incisors have never been erupted, and in both these cases the wisdom teeth are also absent, although the patients are over thirty years of age. I can mention another person, aged forty, in whose mouth the second bicuspid of the lower jaw is wanting, and in its place we have the temporary molar; while in both the upper and the lower jaw there are no wisdom teeth. A similar case is also entered where the temporary molars are standing on both sides, but neither in the one jaw nor the other are there any signs of the third molar. This lady's age is over forty. As I have said, in every case coming under my notice, where any deficiencies of permanent teeth exist, the wisdom teeth are also absent.

You will observe in various specimens, jaws where the teeth are ground down, giving every indication of years of wear, and where the subjects must have passed the meridian of life, and yet the third molar remains buried in the alveolus.

Again, may not the original tooth-germ be sometimes absorbed, leaving no vestige of its past existence? I am sorry that I am not in a position at present to bring forward many preparations to establish my views on this subject; but as far as those investigations have extended, I have no hesitation in stating that I believe such to be the case. In one lower jaw I had an opportunity of examining, the fourteen teeth were all perfectly formed; but there was no indication of a wisdom tooth ever having been developed. In another, the fourteen upper teeth were all thoroughly erupted, but no third molar could be discovered.

In Dr. Darwin's 'Descent of Man,' after remarking upon the gradual disappearance of the wisdom tooth, the smallness of its size, and the late period at which it is erupted, he goes on to contrast the number of the fangs of this tooth among civilised people and the earlier savage races.

It should be borne in mind that this change is more perceptible in the upper than in the lower; indeed, the lower wisdom tooth, where it is erupted, is usually of the normal size, and this will account in some measure for the disturbance frequently created by its eruption in that jaw more than the upper. The two fangs are certainly somewhat flattened and turned backwards, but in other respects the tooth has very little changed. In the upper we have a gradual merging of the three fangs into one, and the size of the tooth, as I have said, is becoming smaller and smaller, until at length we very commonly find the upper dentes sapientiæ no larger than lower bicuspids.

It was my intention to have brought before you this evening several cases of impacted wisdom teeth; but as these cases bear a very strong resemblance to each other, I shall content myself by relating the particulars of one where the buried tooth produced chronic abscess and fistulæ, and was found below the alveolar margin.

On the 16th of February, 1874, I was visited by Mr. S. H. B—, æt. 43, a delicate and highly nervous gentleman. He stated that he had suffered from a swelling in the sulcus between the cheek and the alveolus, which, after about ten days, discharged pus, the opening then healing up. I made a careful examination of the mouth, but without discovering any traces of its past existence. The second bicuspid had been extracted, but the space was nearly filled up. Two molars were standing on this side, both perfectly sound, nor was there any indication of inflammation in the surrounding parts. The wisdom tooth, I observed, was absent, and I inquired whether at any time it had been extracted, but was assured that it had never been erupted. As the patient was much out of health I recommended that he should consult his medical adviser, and see me in a month or six weeks' time. In May, 1874, Mr. S. H. B— again called, having had a slight return of the symptoms, accompanied by a disagreeable taste in the mouth, the muscles becoming somewhat contracted. I again examined the mouth carefully, and found an opening opposite the second molar, from which pus was exuding, and a slight swelling at the angle of the jaw. These symptoms pointed to necrosis, but the wisdom tooth being absent I felt justified in suggesting the removal of the second molar, and making a search for the missing tooth. This, however, the patient was reluctant to consent to; it was therefore determined that he should pay Mr. Thomas Bryant a visit to ascertain whether there were any dead bone; but that gentleman was unable, without an operation, to give any opinion on the case, remarking that if the Dentist had not sent the patient to him, he should certainly have sent the patient to the Dentist.

October 29th, 1875, I again saw this case. During the seventeen months that had intervened I had not had a visit from the patient; he informed me that during this period, somewhere about the month of May, the abscess had once more returned; that this time it had broken externally, giving him great relief, and the cheek had healed up again; that he had been free from pain until the first week in September, when he went into the country for a holiday. Once more the old symptoms returned, the abscess again formed, broke internally, and in three places externally, the jaw becoming perfectly rigid. At the end of October the patient returned to London, and on the 29th, as I have said, he visited me. The mouth could now be opened about half an inch, and there was a fetid discharge both internally and externally, by three fistulous openings. I at once decided to remove the second molar; but this was a matter of no small difficulty, owing to the contraction of the muscle. Nitrous oxide gas was however administered, the mouth forcibly wedged open, and the tooth turned over with a hawk's-bill forceps. A portion of the fang, however, was broken off, owing to the acuteness of angle at which it had to be extracted. The bleeding having subsided, and the patient sufficiently recovered, an examination of the mouth was made, and there the wisdom tooth was discovered lying horizontally below the level of the alveolar margin, its masticating surface being directed forwards and downwards, proving that it had been pressing against the fang of the second molar just removed.

January 6th, 1876.—An appointment was made for this date, when Mr. Clover attended and administered ether and nitrous oxide gas. The tooth had by this time raised itself a little above the margin of the alveolus, and it was safely extracted, and also the piece of fang previously broken off the molar.

February 18th.—All the disagreeable symptoms have now entirely subsided. Four small pieces of bone have come away, and the gum is gradually closing over. The fistulæ in the cheek have also healed, and the tannic acid and chlorate of potass mouth-wash he was directed to use has been discontinued.

Mr. Coleman mentioned a case of an impacted wisdom tooth. It occurred in a lady past middle age. She had been attended for abscesses at and below the angle of the lower jaw on the right side, and Sir James Paget, under whose care she was after carefully examining the jaw for dead bone, struck against something from three quarters to an inch below the surface which appeared to him harder than a piece of necrosed bone would be. It was resolved to attempt its removal, and after considerable trouble a view was obtained of a portion of one of the cusps of the wisdom tooth impacted in the bone, from which pus and blood were welling up. The bone was cut away round the molar tooth, and eventually the tooth was extracted in two portions. In another case the patient had suffered for twenty-four years, and had been treated for diseased bone. The lower jaw had even been trephined with a view of opening an internal abscess. Unfortunately the trephine never hit upon the impacted wisdom tooth. He administered nitrous oxide and made an incision to the bone, and the tooth was extracted, but though the operation took place four or five years ago there was still considerable thickening about that part of the jaw.

Mr. Charles Tomes said, in the higher monkeys such as the gorilla the third molar was in every respect a well-developed tooth, sometimes even larger than the first and second molars, but instead of a spongy, softened crown, it had a crown on which the cusps were arranged according to the typical pattern. Further than this, it was generally cut before the attainment of sexual maturity, and before the animal had cut its large canine teeth. In the lower races of mankind, too, the wisdom tooth was a large functional tooth, and preserved the characteristics of cusps. In more civilised races it was quite exceptional for the lower wisdom tooth to have the four cusps distinctly developed. This was one of the things which pointed to its gradual disappearance. He mentioned a case in which a patient had suffered most intense neuralgia in the eyeball. There were no decayed teeth on that side of the mouth, but the upper wisdom tooth stood very nearly horizontal. That tooth was extracted and there was no return of the neuralgia. About a year afterwards, in very nearly the same position, the cusp of another tooth appeared, and at the end of another twelvemonth an additional wisdom tooth was developed in an almost normal position.

Mr. TURNER said the opinion was certainly gaining ground that the wisdom tooth was disappearing.

Mr. MUMMERY said, among the stronger African tribes the third molar was always present in the lower jaw, but in the more enfeebled races it was frequently absent.

Mr. C. WEST said he had invariably found that where the Dental arch was well formed the wisdom tooth was well developed, but where there was contraction and general deterioration of the physical structure of the mouth, the wisdom tooth assumed an abnormal appearance.

Mr. WEISS, in reply, said it might be asked why, in the case he had cited, no attempt was made to save the molar tooth? The position of the wisdom tooth could not be ascertained, and the patient was of too excitable a temperament to allow a proper examination to be made. In support of the belief that wherever any of the permanent teeth are absent the wisdom teeth will generally be found to be missing, he exhibited several models. One of a woman who had no laterals, and another case where the second bicuspid of the lower jaw was absent. In both of these cases no wisdom teeth were present, although the one patient was twenty-six, the other over forty. He mentioned a family, the several members of which were distinguished for intellectual culture and for muscular development. The grandfather erupted all his teeth. The son had no wisdom tooth on the right side of the upper and a very diminutive one on the left, and the grandson, now thirty-seven years of age, had none in the upper, and the lower were rather smaller in size. It could hardly be said that these results were due to want of nourishment, for they were all very fine men. As far as he could arrive at any conclusions, the existence of the wisdom tooth depended more upon mind development or civilisation than mere muscular strength. One fact appeared to be pretty well established—that the wisdom tooth is gradually disappearing.

The meeting then adjourned.

The following applications for Membership have been laid before the Council:

Mr. John Carteighe, jun., L.D.S., 1, Stratford Place, Camden Square (resident).

Mr. Robert Hall Woodhouse, M.R.C.S., L.D.S., 1, Hanover Square (resident).

Mr. Alexander Cormack, L.D.S., 1, George Street, Edinburgh (non-resident).

Mr. Marten Finlason, 161, Constitution Street, Leith (non-resident.

Mr. Frank Richardson, 10, London Street, Derby (non-resident).

Mr. William Bowman Macleod, M.O.C.S.E., 43, George Street, Edinburgh (non-resident).

Mr. Malcolm MacGregor, M.O.C.S.E., 20, Queen Street, Edinburgh (non-resident).

Mr. Charles Matthew, M.O.C.S.E., 59, Queen Street, Edinburgh (non-resident).

Mr. John E. Watson, 64, Rue Basse du Rampart, Paris.

DENTAL STUDENTS' SOCIETY.

ORDINARY MEETING, HELD MARCH 13TH, 1876.

DAVID HEPBURN, Esq., L.D.S., President, in the chair.

THE minutes of the previous meeting were read and confirmed, and Mr. Macy who was proposed at the last meeting was balloted for and elected a member of the Society, and Mr. Lucas was proposed as a member.

Mr. ACKERY showed a very interesting specimen of a sac of an alveolar abscess attached to the root of an upper bicuspid.

Mr. W. H. Fox (Gloucester), sent to the Society (through the President) the models of a case which had come under his notice. The patient (Miss G—, aged 17), in the upper jaw, had the two laterals and two bicuspids missing, never having been extracted. In the lower jaw in November last, the first temporary molar from each side was extracted as they were loose, and since then the first permanent molar (left), so that at present there are three bicuspids absent and a temporary molar (left) standing, and not raised to the level of the other teeth. None of the wisdom teeth have yet appeared. The patient has great difficulty in masticating owing to mal-articulation.

Mr. ROWNEY brought forward a very interesting case of supernumerary teeth. The patient came complaining of great tenderness in the gum, round the first lower bicuspid (left), which was decayed nearly down to the gum. On examination a supernumerary tooth was found which had pushed its way through the alveolus, and was standing nearly at right angles to the root of bicuspid. The bicuspid was removed also the supernumerary tooth, and the patient left free from pain. After two or three days the patient returned complaining again of the same tenderness, and on examination two other supernumerary teeth were found in the socket from which the bicuspid had been extracted.

The President then called on Mr. Birt for his paper on "Odontalgia and Neuralgia."

This paper is so long, and, at the same time, is such an excellent *résumé* of the subject, that we propose to publish it entire in future issues.

At the conclusion of the paper a discussion ensued in which Messrs. Bennett and Hepburn took part.

A vote of thanks was then warmly accorded to Mr. Birt, for his very excellent paper, and the meeting terminated.

ANNUAL DINNER OF THE LICENTIATES IN DENTAL SURGERY AND THE ODONTO-CHIRURGICAL SOCIETY.

The Anniversary Dinner was held in the Douglas Hotel, Edinburgh, on Monday, 13th March. Mr. D. Hepburn, L.D.S., Vice-President of the Society in the Chair, with Mr. Williamson, L.D.S., Aberdeen, as Croupier.

The usual loyal and patriotic toasts having been given from the Chair.

Mr. Williamson said,—In proposing the toast of the "Dental Diploma," a toast which, like many others, is a stereotyped one at our annual social meetings, it is frequently not possible to say anything that is new and fresh; and to repeat the same old, stale platitudes over again, is at best a distasteful task. This year, however, I may consider myself fortunate in having to congratulate you on the fact, that the College of Surgeons of England has made another most important step in advance in the right direction, by intimating that, after October, 1877, a preliminary examination in general knowledge (of the same character as that required to be passed by the ordinary medical student) will be enforced in regard to dental students. Nothing, I think, could have been proposed better calculated to advance the higher interests of the profession than this most timely and judicious step. It has followed close on the heels of a great movement for registration. These two subjects at present occupy the thoughts, and enlist the sympathies of all who look beyond the limited area of their own immediate interests. They mutually support each other; but if called upon to say which stands first in relative importance to the profession, I should give the preference to the educational movement. The greatest objection urged against registration of dentists is, the absence of general culture among even those who have had a special training, and the sad lack of any kind of culture among the mass of the profession. It is true that in this respect we are no worse than our neighbours; and we might point to America with its dental colleges of nearly forty years standing, which still leave the question of general culture untouched, open, and unenforced. But two blacks do not make a white, and I rejoice that on this point we may lay claim to priority of movement. It will, I feel sure, have a stimulating effect on the other side of the Atlantic also, and in a few years we shall see general culture added to the special and practical teaching, for which they have been so long celebrated. The thanks of this Society are due to the College of Surgeons, and to those members of our own profession who have in any way advised or supported this resolution; and I am convinced that all such movements will ever have our warmest sympathies enlisted in their favour, mingled with regret only on account of our northern position denying us the pleasure of personally assisting. I have much pleasure in proposing the toast of the "Dental Diploma."

The CHAIRMAN, in proposing the Odonto-Chirurgical Society, said, the next and last toast which he had to propose for their acceptance, was one to which he felt sure they would all give a hearty response. It was not "Our noble selves," but it was one in which they were all personally, and he trusted deeply interested; that toast was, "The Odonto-Chirurgical Society." Believing in the benefits that must accrue to them individually, to the profession and the public, from the institution of such a Society, he had ever taken the deepest interest in its success; he had, in fact, looked upon it as a sort of child of his own, "an adopted one," and had watched its growth and progress with the utmost hope and solicitude, and nothing had given him greater pleasure than when he had seen the name of a good and true man added to the list of its members, or had heard in other places that it had upheld the character and dignity of the profession in "the grey metropolis of the north." If it had failed to accomplish all he had hoped from it, or had not yet acquired the position he had desired to see it attain, he believed it arose simply from the fact, that his hopes were all too sanguine, and his desires too great to be realised in so short a time. Nevertheless, he could not review its brief career, for it was but a brief period in the history of such a Society, without feeling more than gratified by what it had already achieved, and more hopeful as to the good it is destined to accomplish in the future. If the number of papers read at its meetings had not been great, their quality had undoubtedly been good, and had been listened to and discussed with interest, and he trusted profit, by all who had heard them. He thought their conversational meetings, if not so pretentious, had been most pleasant, and had elicited much useful information in the practical details of their profession, which could not have failed to prove other than useful and instructive. Of their social gatherings he need say little, they had all experienced and enjoyed them, and had felt how such meetings, probably more than any others, had tended to break down the unseen barriers that used to separate the members of the profession one from another, and had realised the force and truth of the lines,

> "Behold how good a thing it is, and how becoming well,
> Together, such as brethren are, in unity to dwell."

Mr. Hepburn then alluded to the coming changes in the profession which seemed looming in the distance, as evidenced in the recent movement through the whole body, and the appearance of certain small storm clouds flitting through the horizon of Dental politics. In these movements the Society would be called upon to play its part, and he doubted not it would play it well; for though, as a rule, he thought Dental politics were better eschewed at their meetings, there were times when, as a representative body, it would be called upon to give expression to the feeling of the profession which it represented, and the weight of that opinion would very much depend upon the number and unity of their members, and the position the Society held in public estimation. In concluding, Mr. Hepburn said, that the rapid increase in the number of those practising their profession, and the demands made upon their skill, &c., rendered a Society such as theirs a necessity of the day; feeling this, he thought that each and all of them ought to make some little sacrifice to strengthen and uphold it, both for their own and for the sake of their profession, which it was so eminently calculated to raise. By doing so they would not only be performing a duty, but they would naturally reap the reward in the additional honour it must bring to all. If their profession was not worth this sacrifice, it was worth nothing, and could not have in it the elements calculated to raise it from the depths into which it had sunk. But he said, I hold it is worthy of this, and much more; and be assured, if we fail in our duty, and from lack of interest or other meaner motive take our hand from the plough while it is yet in the furrow, others will be found to carry on the good work; and although they may not live to reap the harvest, they will sow in hope, feeling assured that a coming generation will reap the fruits of their labours, and it may be, look back with grateful remembrance to the early workers in this field. Gentlemen, I give the "Odonto-Chirurgical Society" with all my heart.

Mr. J. R. Brownlie, L.D.S.—The toast I have to propose to you is the "Odontological Society," and in proposing it I mean to take to myself the hints we have had about short speeches. At such a meeting as this it will be readily admitted that the Odontological Society is too well known, and appreciated to require that much be said by way of introduction to this toast. We are all more or less acquainted with its position, its influence, its work, in the past, and I am sure we one and all look forward with the most confident anticipations as to its continued success in the future, that it will continue to illustrate the prudence and wisdom of its founders in placing it on so broad and liberal a foundation. It is quite impossible that in any society such as this, all shades of opinion entertained by its members can be fully represented in its working, and we need not be surprised that in the Odontological Society there are those who have expressed something like disappointment, that it has not taken an active part in the discussion of those measures of reform at present agitating the profession. It seems to me, however, that if it were to admit to discussion such questions, which are capable of giving rise to feelings, the strength of which are too often disproportioned to the importance of the question giving rise to them, that the Odontological Society would only succeed in undoing a great part of the work which it has so well done in the past. As I understand it, the Odontological Society is representative of the scientific and the artistic aspects of the profession, and as such is quite capable of earning and enlisting our warmest sympathy and support. There is one thing that can scarcely be overlooked in proposing such a toast, and yet I fear in saying much about it, we may be investing the movement with an importance which it does not possess. I mean the proposal to establish a rival society. Whatever one may think of the means to be employed by this new society (and it does seem a singular mode of improving a profession, this *going out of it* after something else), yet the objects aimed at by its promoters are undoubtedly orthodox, so far as we have been made aware of them. It would appear also to have enlisted some degree of enthusiasm on its side—if it be the case as has been reported—that there are amongst its supporters men who have arrived at that time of life when it appears natural to think of *otium cum dignitate,* who are nevertheless about to renew their youth by starting afresh as students, in order to qualify themselves for admission to this "upper house." What the result of this movement may be time will show, but I have not the least doubt that the Odontological Society will be the Society to which we will have to look for many a day to come, as the most worthy representative of our art and craft in this country, and I have therefore to ask you to give a hearty reception to the toast of the Odontological Society.

Mr. De Lessert of Aberdeen in proposing the "Dental Profession" said he was glad the time had arrived when it was unnecessary to preface any remarks on this subject by proving Dentistry entitled to rank as a *profession;* its rapid advance in a scientific point of view, during the last few years, having placed it without doubt in such a position. As a young man he could not help expressing his gratitude to those who had gone before, and had raised it from a mere business to a study that yielded mental as well as pecuniary profit; and he trusted that the junior members would feel it incumbent upon them not only to support their calling in a professional spirit towards each other, but also contribute papers to the various societies, so that when in their turn they fell into the senior ranks they might do so in a creditable manner. He had much pleasure in proposing the toast of Dentistry as a profession, and not as a low money-grubbing art.

Mr. Finlayson in proposing the "Chair" said that he personally considered this the toast of the evening, and he thought it would commend itself as such to all of those present. After the lengthened speeches of the evening, he would simply ask all, and they all knew him, to respond heartily to the toast, which was done with all the honours.

Dr. Roberts, L.D.S., proposed "The Visitors," coupled with the name of Mr. Alfred Hill, of London.

Mr. Hill.—Mr. Chairman, Mr. Croupier and gentlemen, I beg to thank my friend Dr. Roberts for the very kind expressions he has made in reference to myself, and you, also, for the cordial reception you have given them. I am very delighted to be present at this social *réunion* and commemoration dinner, because, in my opinion, it is one of those features of our professional life which should not be neglected. Those who are here to-night meet to represent the scientific and social rank of the profession, the latter accorded to us legally sixteen years ago. It is, to my mind, an important thing to remember the passing of the Act of

Parliament which empowered the executive of the Royal College of Surgeons to institute examinations in our department of surgery and confer degrees according. We meet, then, as Dentists who have submitted to and passed our examinations, and are, consequently and thereby, declared to be competent to practise as such. There has been a great deal said upon the subject of what constitutes proficiency, and much stress has been laid upon the possession of the degree of M.R.C.S.E.; but I have held from the first, and still hold firmly the opinion that every recognised Dental practitioner, whatever other significant letters he may be able to append to his name, should, first of all, and best of all, secure the Licentiateship in Dental Surgery. This ought to be with all of us the *sine qua non.* As the facilities for further acquisition of knowledge increase, this degree will doubtless become, as it should be, more difficult of attainment, and, as Mr. Williamson has already mentioned, the College of Surgeons of England have resolved that after a certain date, close at hand, no one shall be permitted to become a candidate for the L.D.S. degree unless he pass the preliminary examination. I hail that step as a great and most important advance, seeing that it will protect our ranks from the ingress of jacks-of-all-trades, and make it certain that aspirants for this distinction know something of the fundamentals of our common language. Those of us who are associated with the practical education of our students at the Dental Hospital of London have resolved that the gentlemen committed to our care shall do something more than fill their heads with book knowledge. While estimating such learning at its highest, as indeed it ought to be estimated, I, for one, at least, believe that the practical is of equal importance, and the students at our hospital are expected to take advantage of the large opportunities they have in that institution to reduce their principles to practice, their doctrines to deeds. To this end it has been determined that no member of the medical staff shall sign up the schedule of a candidate for the L.D.S. degree unless he can show that he has made a certain number of gold fillings during his term. We thus hope to turn out year by year young men who can perform the various operations on the teeth which they will have submitted to them, but will perform them skilfully, and upon recognised principles of science and art. The profession, I believe, is more than ever desirous of *advance;* and we hear of agitations to this end every now and then. We all recognise the truth of this assertion, but we may not all be able with equal facility to understand the methods employed, or the motives of those who may be identified with such movements. You, gentlemen, for instance, who live at a distance from our great metropolis are at a disadvantage in this respect, and with all your desires to aid by purse, and influence too, in any genuine work of professional reform, are often in a mist and a fog. You have your main reliance placed on what you read in the journals, but I must tell you that they are not always absolutely to be depended upon, and for this reason that the statements there made give but the surface of things, while the substrata, the many under-currents, which are after all the real life of the thing are at times omitted. Beyond this, many important facts which make a movement gravitate to this side or that are not food for editorial appetites, or fit material for journalistic publication. My advice to you is when you require to know fully the course events are likely to take, and what are the real sources of power, lay aside your journals and write to some reliable friend, say, for instance, my friend and yours on the chairman's right hand (Mr. R. Hepburn), and he, or others, placed as he is, will give you the positive and real condition of matters for your guidance. The aim of certain gentlemen lately has been in the direction of securing registration, in itself a very desirable advantage; but I have yet to learn that the deep-seated prejudice of the medical profession has been removed, or modified at all since the time I had officially to deal with it and learn its power. The only method I am acquainted with for the true advance of the Dental profession is education. We must educate, educate, educate, and then we shall be in a position to overcome obstacles which without this are insurmountable, and the elevation of our profession will be attainable with comparatively little effort. I am here to-night to assert that from what I know, and my inspiration is from a source which, if I named it, would command your confidence, that further demands from the Royal College of Surgeons of concession in this direction are not likely, for some time to come, to meet with a response in the affirmative. We must depend upon internal improvement by means of higher and higher education, instead of Acts of Parliament; and upon a reasonable amount of time rather than spasms of exertion away from the centre of influence, which, before they are demonstrated as abortive, may go far to weary and disgust the true friends of the profession. I am well content to journey four hundred miles thus to meet gentlemen whose aims are, I feel certain, somewhat in the direction I have ventured to hint at, and the only drawback to my complete satisfaction with this very happy, and I may add, useful meeting is the absence on this occasion of some who I had hoped would, and I may even say I think should have been here to-night. Gentlemen you must permit me to say that, although a difficult lesson yet it is an essential one, we must be emptied out of self at such times, and even be content to set ourselves aside, and, instead, bear patiently what we certainly do not like, for the general good. Divided, apart, isolated, you are and must be, weak; united, you are strong. And this leads me to say just a word or two on the subject of the new Society which it has been proposed should be formed. I am not in a position to state more than has already been made public in our own and the medical press, but personally I look upon the scheme as very critical. The questions which occur to me are "Is it necessary?" "Is it being promulgated at the right time, in the right tone, and in the right temper?" After much labour the profession has attained to more than the semblance of union, and I fear for the result of any ill-timed measure. On the other hand, I am persuaded that the upholding of the status already acquired, and a further elevation of that status are the two main objects of those more immediately concerned. We are not in possession, as yet, of much beyond the barest announcements, and therefore it will be wise to wait further before pronouncing a final opinion on the subject. In the mean time, gentlemen, allow me to repeat I am here for one purpose above all others, and that is to lend you my feeble support in your attempt to uphold the honour and efficiency of the Licentiate's degree. Let us all seek to use the materials we have in hand wisely and well, and then we shall be sure of progress of which we shall not have cause to be ashamed; moving forward, steadily shoulder to shoulder, from good to better, from better to best, from glory to glory, until we reach the object of our ambition. the goal of our desires.

Mr. Wilson proposed "The Members from a distance," he had never seen them better represented than at this gathering; he would couple it with the name of Mr. R. Hepburn, L.D.S., London.

Mr. R. Hepburn in returning thanks in the name of the "visitors from a distance" who like himself had come from a distance to be present at the meeting of the Odonto-Chirurgical Society and Banquet, said that it gave himself and he was certain all those friends who represented other localities the greatest possible pleasure to be present on this interesting and friendly occasion, it was a union long to be remembered, and they would carry away with them a most pleasing recollection of a happy gathering of so many of their esteemed professional brethren in Edinburgh. Mr. Hepburn then touched on the great importance of the last act of the College of Surgeons when they came to the determination of fixing a time when every candidate for the Dental diploma would be required to pass the preliminary examination, adding this is really a boon which was much wanted, and will come into operation at the right time. After speaking of the inutility of interfering with quacks and charlatans who unfortunately mislead so many in the present day, and the impossibility of maintaining a combat against gross ignorance, deceit, and falsehood, thought that every effort should be made individually, to educate patients to the true standard of what is really to be effected by scientific skill and honest integrity. He also strongly impressed upon the members of the Odonto-Chirurgical Society to lose no time in founding with their Dental Dispensary, a school of instruction, whereby students might be enabled to carry on and complete their Dental studies second to none in the three kingdoms, possessing the most efficient means of securing a thorough classical, surgical, and mechanical education previous to taking the degree of Licentiate in Dental Surgery, &c., &c., &c.

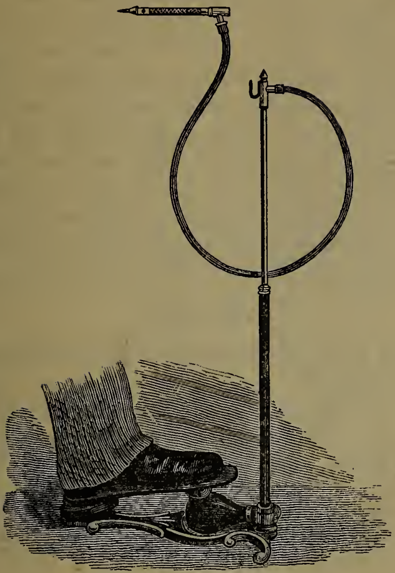
Mr. Campbell, L.D.S., proposed the health of the croupier, who, although coming from the far north, had been so regular in his attendance at the Society's meetings, that his absence from the last two had been remarked on. He hoped that the return of Mr. W. H. Williamson, D.D.S. (whom he was very glad to see among them to-night), from America, would give his father leisure to be with them as of yore.

Mr. Campbell in a few remarks proposed the health of the "Hon. Secretary."

In replying, Mr. Wilson said that meetings so well attended as that of that morning, and such enjoyable gatherings as the one they were now bringing to a close, well repaid him for any trouble his post entailed upon him. He hoped to be able to congratulate their new treasurer and himself on being equally successful next March.

The party then broke up.

Miscellanea.



KIRBY PNEUMATIC MALLET.

Through the courtesy of Messrs. Ash we are enabled to place before our readers the above engraving of this ingenious and useful instrument. It consists of a light metal tube, provided at one end with a socket for holding the point, and containing a loose piston or plugger, which is moved rapidly forward by a puff of air obtained from a small bellows connected with it by india-rubber tubing, and worked by the foot. In addition to the straight instrument, which, like all others, can only transmit force in a straight line, another one is contrived in which the point stands at an angle to the shaft, by which the direction of the blow is changed, and by its help a stopping can be consolidated towards the anterior or exterior walls of distal cavities.

From the light weight and high rate of speed at which the hammer travels a very small blow is given, the force of which is almost entirely expended on the immediate neighbourhood of the spot struck, so that there is very little unpleasant battering or shaking of the tooth, as is the case when a heavy mallet is used, whilst the blow is very much more effective.

A NEW MODEL REGISTER.

By James Stocken, Esq.

Having been requested by the Editor of this Journal to furnish particulars of my "Model register" I have now the pleasure of doing so.

I have had the plan in operation more than a year, and can testify to its advantages over all others with which I am acquainted. It had long appeared to me there was wanting some simple arrangement of this kind, whereby we might register the particulars of our mechanical cases, prevent frequent communications with our assistants relative to the work to be done, avoid misunderstandings as to the instructions given or implied, also guard against any error arising as to the right number of the case, and last, but not least, effect a saving of valuable time. In the compilation of my register these conditions I have endeavoured to fulfil, and should my professional brethren take that view of the matter, I shall soon place the register within their reach.

Explanation.

By reference to a blank sheet of the register (No. 1), it will be observed, in the

First line.—Provision is made for the consecutive number of the model, the colour number (to designate which I make use of Ash's shades), and the date on which the impression is taken.

Second line.—For name and address of patient.

Third line.—For particulars of case as regards material, &c.

Fourth line.—A compound line, for designating the number and position of the teeth required; also the kind of teeth, these being indicated by characters thus :

V. Vulcanite. I. Flat. O. Tube.

It will be observed, I have selected letters corresponding to the initials of the teeth thus :

M. Molars. B. Bicuspids, &c., &c.

Fifth line.—For date, &c., when case will be required for trying in.

Sixth line.—Number of teeth.

Seventh line.—For date, &c., when case will be required finished; also for charge to patient, this being inserted in cypher, and in the duplicate omitted altogether.

No. 2 represents the blank sheet filled up as above described, the duplicate being torn off and given to the assistant, with the impression.

These duplicate sheets (250 in number) are bound up in the form of a book, with an alphabetical index; in this index the name is entered and in same line the number, so that the case can at any moment be referred to without any trouble whatever.

40, Euston Square; February 22nd, 1876.

No. ____ **Colour No.** ____
Name ____
Material ____

TEETH { **M M—B B—C—L I - I L—C—B B—M M**

Try in ____
No. of Teeth ____ ; **Upper** ____ ; **Lower** ____
Required ____ **Price** ____

No. ____ **Colour No.** ____
Name ____
Material ____

TEETH { **M M—B B—C—L I - I L—C—B B—M M**

Try in ____
No. of Teeth ____ ; **Upper** ____ ; **Lower** ____
Required ____ **Price** ____

(No. 2.)

No. 1560. **Colour No.** B 2. February 12th, 1876.
Name, Jones, Mrs., Albert Road.
Material Upper, Gold Base.—Teeth set in Vul. c. Springs.
Lower, Gold Base.—Tube Teeth.—Spring No. 8—$1\frac{5}{8}$.

V V V V I I I I I I V V V V
TEETH { **M M—B B—C—L I - I L—C—B B—M M**
o o o o o o o o o o

Try in, Wednesday, 16th, 2.30 p.m.
No. of Teeth, 24; **Upper,** 14; **Lower,** 10.
Required Saturday, 19th, 11 a.m. **Price** ab/ ab/

No. 1560. **Colour No.** 132. February 12th, 1876.
Name, Jones, Mrs., Albert Road.
Material Upper, Gold Base.—Teeth set in Vulc. c. Sp.
Lower, Gold Base.—Tube Teeth.—Sp. No. 8—$1\frac{5}{8}$.

V V V V I I I I I I V V V V
TEETH { **M M—B B—C—L I - I L—C—B B—M M**
o o o o o o o o o o

Try in, Wednesday, 16th, 2.30 p.m.
No. of Teeth, 24; **Upper,** 14; **Lower,** 10.
Required Saturday, 19th, 11 a.m. **Price**

DEATH FROM CHLOROFORM.

A DEATH from the administration of chloroform took place at Liverpool on the 25th March. It appeared from the evidence at the inquest that a Mrs. Rowlinson went to Mr. E. A. Morgan, M.R.C.S., Dentist, in Bold Street, for the purpose of having some teeth extracted. At her request chloroform was administered in the presence of her niece, a young lady, and a servant. Mr. Morgan had drawn two or three stumps, and was about to draw others, when he observed the lady's face become deadly pale. He immediately lifted her from the chair, and used every effort to restore animation, but without avail. A post-mortem examination of the body having been made the cause of death was said to have been arrest of the heart's action, partly from a weakened condition of that organ, chloroform being the exciting cause. The verdict was death from misadventure, the jury absolving Mr. Morgan from all blame.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MORTON ALFRED SMALE passed the primary examination for the Membership on the 5th of April.

EDWARD ALFRED STARLING, A.A. Oxon., pupil of Mr. George Henry, L.D.S., of Hastings, passed the preliminary examination in Arts for the Membership on the 14th, 15th, and 16th of March.

APPOINTMENT.

MORTON ALFRED SMALE to be Dental Surgeon to the Children's Free Dispensary, Bell Street, Edgware Road.

NOTES AND QUERIES.

6. A GOOD NON-ADHESIVE LIQUID without grease, air bubbles, smell, or stain on the work, is obtained as undermentioned:

Hudson's extract of soap (to be procured at any oil shop) in small penny packets. Take a quarter of an ounce of the powder, and add four fluid ounces of boiling water; when the heat has reduced sufficiently to bear the handling, shake until a creamyliquid is produced. This will not change its form for months, and is always to be relied on as a safe preventive of plaster adhering to a surface slightly coated with it. I have used it for a long time and never found it fail.—G. DAVIDSON.

7. In some mouths the pink vulcanite gums turn black, and this blackness can only be removed by the file or sand-paper, so far as I know; can the vulcanite be prepared so as to prevent this, or, if not, is there any readier way of removing it?—B. M.

8. BORAX.—It has been found by A. Hirschberg ('Arch. Pharm.' (3), v, 523) that borax or boric acid will preserve milk sweet for

twenty days, a slight scum only forming on the surface. Such a test as this clearly indicates their value for some Dental purposes.—Thos. Fletcher.

9. In drilling the roots of teeth for pivoting, where the pulp has long been dead, alveolar abscess is apt to supervene; what is the best treatment to prevent this untoward result, and what form of drill will do the work with the least possible irritation?—X. Y. Z.

10. To Squeeze the greatest amount of Quicksilver out of Amalgam Stoppings.—Soak the piece of amalgam about to be used in boiling water for two or three minutes previously, and then squeeze out the quicksilver as usual in the corner of a napkin.—Chas. L. Keys.

Obituary.

CAMPBELL DE MORGAN, F.R.S.

This gentleman, whose loss we have to deplore, was so zealous and steadfast a friend to our specialty, as especially evidenced by the warm and active interest he took in the Dental Hospital from its very first foundation and the desire he always showed at the Middlesex Hospital to study the comfort and welfare of the Dental students, that we feel sure the following excellent memoir from the 'Medical Times and Gazette' will be of interest to a large number of our readers.

By the death of Mr. Campbell de Morgan, F.R.S., the Middlesex Hospital has lost the senior member of its active staff, and the School of the Hospital its oldest lecturer; whilst the profession laments one of its most admired and respected members, and society is deprived of a genial, witty, and accomplished gentleman. Campbell de Morgan was born at Bideford, in Devonshire, in November, 1811. He was the youngest of four children, his elder brothers being Augustus, the well-known logician and Professor of Mathematics in University College, London, who died a few years ago; and George, a barrister, who is still living, His father was a colonel in the Indian Army, and died early in Campbell's boyhood in the year 1816 on his voyage home from India. His mother was a lady of considerable ability and strength of character, and on the death of her husband retired into Somersetshire for a time, and afterwards resided in London. In due time, Augustus and George went to Cambridge, and Campbell to Shrewsbury School. Campbell De Morgan acquired his turn for the profession during his early youth, and while at home with his family at Taunton.

There was then living in that town a medical practitioner named Standert, a remarkable man, who had been a pupil of Sir Anthony Carlisle. Standert was a thorough genius—a scholar, artist, and poet,—and was well known in his profession throughout the three western counties. He had a strong attachment for children, and became especially fond of Campbell De Morgan, who was always running in and out of his house. On one occasion, when Mr. Standert was articulating a skeleton, young De Morgan was very much interested, and told his friends that they were "putting together a man, and intended to knock in his soul with a hammer." From this time dated his predilection for anatomy. In 1828 he became a private pupil of Sir C. Bell, and entered for lectures at University College, London.

At this time there was a sort of union between the Middlesex Hospital and University College, for the students in attendance on the classes at the College sought their ward work and clinical instruction at the Hospital. Previous to the establishment of University College and King's College, the Middlesex Hospital had furnished the means of clinical instruction to the pupils of the celebrated Windmill Street School of Medicine, the teachers of which were, for the most part, connected with the Middlesex and St. George's Hospitals. After the opening of these Colleges this association of teachers was broken up, and the school of St. George's was started, while the students of University College attended the Middlesex Hospital. At length the managers of University College built a hospital of their own; and, as a natural consequence, the number of pupils at the Middlesex Hospital declined. On this account an address was presented to the governors of the Hospital on April 14th, 1835, suggesting the establishment of an independent and complete school of medicine. This address was signed by Francis Hawkins, Thomas Watson, Charles Bell, Herbert Mayo, James M. Arnott, and E. W. Tuson (the staff of the Hospital at that time). It was at once favorably entertained by a committee of the governors, and the School was opened on October 1st, 1835.

In the year 1832, Mr. De Morgan was appointed House-Surgeon of the Middlesex Hospital, and on October 9th, 1835, he became a member of the College of Surgeons. Thus was he a representative of the men educated under the former alliance which existed between the College in Gower Street and the Middlesex Hospital, while the commencement of his career as a qualified surgeon dates from the selfsame month as the foundation of the Medical School of the Middlesex Hospital.

During 1836 he spent several months at the continental hospitals, and after his return to London he lived with his mother and brother at 17, Manchester Street, where he commenced paactice as a surgeon. Here he continued until after his marriage in May, 1848, when he soon removed into the house he ever afterwards occupied in Seymour Street. He never ceased to keep up his connection with the Middlesex Hospital, with the view of ultimately being appointed on the staff.

In 1836, Sir C. Bell, who for twenty-two years had been one of the Surgeons to the Hospital, resigned upon being appointed to the Professorship of Surgery in the University of Edinburgh. Mr. Tuson went up in rotation, and Mr. Alexander Shaw, now Consulting Surgeon, succeeded unopposed to the vacant Assistant Surgeoncy. It was not till six years later, viz. on December 15th, 1842, that Mr. De Morgan was elected Assistant Surgeon. He had, even then, to contest the appointment, but gained an easy victory over his opponent, who polled only 56 votes against Mr. De Morgan's 346. Just twelve months afterwards, on December 11th, 1843, he was made an honorary Fellow of the College of Surgeons. On December 21st, 1847, all the members of the Hospital staff resigned, on the understanding that all excepting one of the Surgeons should be re-elected; thus, on January 20th, 1848, Mr. De Morgan was made full Surgeon, with Mr. J. M. Arnott and Mr. A Shaw as his seniors; and at the same time the late Mr. C. H. Moore was elected to the Assistant Surgeoncy rendered vacant by Mr. De Morgan's promotion.

For many years, and up to the time of his decease, Mr. De Morgan was a lecturer in the School. In 1840 he succeeded Dr. Leighton as Lecturer 'on Forsenic Medicine; in 1845 he was appointed to the chair of Anatomy vacated by Mr. Tuson; and some years later he exchanged this for the chair of Physiology, which he held up to the year 1866. His lectures on Physiology were very popular with the students, especially those on the brain and nervous system, which always drew together a large and attentive audience, and are remembered and spoken of to this day with admiration and delight.

In 1866-67 he joined Mr. Shaw in the chair of Surgery. Mr. Shaw resigned in 1869, and Mr. Moore at once became associated with Mr. De Morgan in the lectureship. From the death of Mr. Moore up to last year he lectured on Surgery alone, but he then began to feel the exertion and fatigue too much for him, and wished to resign the chair altogether. At the entreaty of several of his colleagues, and with that self-sacrifice which always characterised his conduct, he consented to continue with Mr. Hulke. For many years he was treasurer of the School—an office which he resigned only in 1870.

With the governing body of the Hospital Mr. De Morgan's opinion always carried great weight. He took an active part in the abolition of the open Weekly Board, and the substitution of an election board sitting with closed doors—a change which was much required, and one which helped to place the management of the Hospital upon the present orderly and efficient footing.

Very great assistance, too, was given by him in the reconstruction of the Hospital in 1848, the transformation of which by Mr. T. H. Wyatt was a marvel of architectural skill and sound judgment. For a long time the Middlesex Hospital consisted of only two storeys. The operating theatre was at the top of the building, the staircases were in the front, the front wings were only of the same length as the back wings, the out-patient departments were between the male accident and the children's wards, while the dispensary was where the student's waiting room now is. Previous to 1848 the front wings were lengthened; but it was in this year that the Hospital was still more enlarged, and made what it is at present.

Besides his close connection with the Middlesex Hospital, he had been from its foundation associated with the Dental Hospital, and was chairman of its Managing Committee without break from the very first down to the time of his death. We have received from a well-known friend of the Dental Hospital a communication, by which we learn that in the prosperity of this institution, and the school thereto attached, Mr. De Morgan always took a very active interest, and seldom failed to attend the meetings of the Committee.

To the business brought before that body he gave his mind with such earnestness thut he rarely failed to carry with him its members, and even to inspire in them the energy and care which have effected the generally acknowledged success of the Hospital, not only as a refuge for the alleviation of suffering, but also as a school for the instruction of Dental pupils. Though not a Dentsl surgeon himself, he took as great an interest in providing means for the efficient education of the Dental as he had done at the Middlesex

Hospital, for the efficient education of the general surgeon. Such was the influence of his tact, good judgment, and regularity as chairman of the Managing Committee, that through all these years he so managed that little, if any, real division of opinion arose amongst its members. In 1874, he took the chair at the inaugural dinner of the New Dental Hospital, and the speech in which on that occasion he proposed success to the Dental Hospital contained many remarks characteristic of the man. He knew and felt (he said) that the world was not so utterly selfish as some people suppose, and he gloried in the thought that the heads of the Dental profession, as the heads of the College of Surgeons had done previously, preferred the honour of their profession to any pecuniary consideration, and were proof against the argument of the gentleman who, when it was proposed to improve the education of medical students, urged, " Why, what fools you are to do that; you will make the general practitioners just as good as ourselves, and they won't call us in for consultation !"

On the subject of medical education he was a pronounced reformer, as may be learnt from his introductory address delivered in 1856. In reference to this feature of his character one of his old friends, and a former colleague, writes :—" To him certainly is due that memorial presented to the College of Surgeons by the lecturers in the Middlesex Hospital School, which denounced in terms far too plain to be palatable to not a few of the members of the Council, the system which seemed purposely contrived to flood the profession with incompetent men. It was the first formal utterance of a protest which has been ratified by the general adhesion of the medical profession, and has led to the great change which in recent years has marked the policy of the College."

There was one act in Mr. De Morgan's life which—albeit it was prompted by that strong sense of truth and honour which was an integral part of his nature, and which made him oppose everything that might dim the brightness of these principles—at one time provoked uncharitable bitterness against him. It was, too, the cause of his being persecuted for a while with grave accusations, when, some years afterwards, he led the van of an attack upon a portion of the medical press. Those who knew him best and were acquainted with all the circumstances of the case have seen few instances of moral courage so striking as that which sustained him in an almost single-handed conflict, with the certain prospect of these accusations being levelled at him. Circumstances, and the purity and consistency of his life, have more than vindicated his honesty of purpose, whatever differences of opinion may exist in other respects. All this, however, relates to scenes of the past, to which, though we have no disposition to unveil them, justice to his memory required that we should glance. He himself would, we know prefer that they should slumber, and therefore

> "Of them we speak not, take one look and pass."

As an original worker Mr. De Morgan was well known. Years ago he wrote a paper " On the Nervous System of the Lobster ;" and in 1852, in conjunction with Mr. John Tomes, he made those researches on the Structure and Development of Bone, the results of which were embodied in a paper published in the 'Philosophical Transactions.' Again, in the year 1858 there appeared in the same 'Transactions' a paper on the " Structure and Functions of the Hairs in Crustacea." On June 6, 1861, he was made a Fellow of the Royal Society.

He was a contributor to 'Holmes' System of Surgery,' and his paper in that book on "Erysipelas" is an evidence of the ability and thoroughness which stamped all his work. His contributions to the Pathological Society were numerous, and he gained by them the reputation of being a sound and learned pathologist, as his other work had marked him out to be a good anatomist and physiologist, as well as an experienced practical surgeon. Upon cancer in its various aspects he was a leading authority, as his writings on this subject sufficiently testify. He held, as is well known, very strong opinions as to the local origin of this disease, but though he was impressed with the correctness of his own views, he was fully alive to, and had in no partial or prejudiced manner considered, all that could be urged against them.

As an examiner in Surgery at the Royal College of Physicians he was very popular. The suave and reassuring manner always natural to him was rendered more apparent in this capacity by his love of fair play; he considered it an act of downright injustice to do or say anything which could daunt or confuse a candidate, whose equanimity is usually somewhat disturbed during the ordeal of examination. He was of opinion that no one ought to examine in a subject he no longer taught, and his objection on this account to an examinership at the College of Surgeons was well known.

As a surgeon Mr. De Morgan never obtained the private practice which his talents and experience deserved: his indifference to fame and wealth, his lack of ambition for what are accounted the good things of this life, and a natural apathy, amounting almost to indolence of temperament, were entirely the cause of this.

He hated charlatanism, chicanery, and trimming of every kind, and was sometimes very severe towards those who seek success by these means. Nothing would induce him to make unnecessary visits or to accept exorbitant fees. He has often expressed himself very strongly on these points to the writer of this memoir, and on one occasion remarked that he had no ability for making a fortune, and then, with one of his quiet but expressive laughs, added, "A man to make money by his profession requires to be specially endowed at birth, and is verily *persona nascitur non fit.* He, on the contrary, has often been known to refuse remuneration, and to tear up or burn cheques, out of consideration for those whom he had benefited by his skill. His experience was very great, his observation accurate, his reasoning logical and close; and his opinions, always deliberate, were usually correct, but rarely or never dogmatic. He was a careful, not a brilliant, operator; he studied the safety of his patient, not his own style of operating; and though never rash, he was always bold when boldness was requisite.

The introduction of chloride of zinc as an antiseptic dressing for wounds, the treatment of empyema by drainage-tubes, and the admirable splint and pulleys for hip-joint disease, are all well known to be associated with his name.

It is much to be regretted he never had a seat upon the Council of the College of Surgeons, but this was his own choosing. Having made a promise he would never allow himself to be nominated as long as canvassing and the ballot were the method of election, he was not the man to break it. Thus the Council lost in him an eminent surgeon, a wise councillor, and a perfect specimen of a finished gentleman.

He held many appointments besides those he filled at the Middlesex Hospital. He was Consulting Surgeon to the Dental Hospital, to the London Fever Hospital, and to the East Grinstead Dispensary, and was also Surgeon to the Institute for Invalid Gentlewomen in Harley Street, and to the Westminster and General Life Assurance Association.

Mr. De Morgan was not only a well-known surgeon, he was besides a highly popular member of society. His entire freedom from egotism, and from anything approaching self-seeking or self-assertion, secured him the goodwill of most. He was truly one of those

> "Gentlemen
> That neither in our hearts, nor outward eyes,
> Envy the great, nor do the low despise."

His urbanity and gentleness of manner, his bright humorous conversation, and his accomplishment as a musician and artist, made him a most delightful companion. At one time he and his brother Augustus were considered the two best amateur flute players in London. He was, too, a good billiard player. His ready wit will long be remembered, especially by his old pupils; some of his *bons mots* have been handed down as tradition amongst them. His remark on first seeing the carbolic spray used during an operation, that the motto of the operating-theatre ought thenceforth to be "Let us (s)pray;" and the exclamation on seeing an extensive scald, which he was told had been caused by the upsetting of preserved fruit, "Eheu! *jam* satis est!"—are only mediocre instances of his smart sayings.

He was a sympathising friend and a very ready helpmate; he gained the affection and confidence of all who knew him intimately, and they will ever associate with his tall and upright figure, and fine intellectual features, a kind heart, a pure and refined mind, and an unvarying, cheery disposition.

His modesty equalled his other virtues, and led him recently to decline a proffered testimonial and to request that no further steps might be taken in the matter. Some memorial will now, without doubt, be raised in his honour; and we understand that a committee has already been formed for the purpose.

The last act of his life was a service of kindness to a sick friend. For many months he had been in declining health, but on the day before he sat up with his old friend Lough, the sculptor, he was much better. The next day he was seized with pleuro-pneumonia, and died within five days, on April 12th. Thus passed from amongst us one "whose remembrance yet lives in men's eyes." He was buried near his wife at Kensal Green, on April 18th, when a large number of old friends, colleagues, and pupils paid their last tribute of respect.

Mr. De Morgan was in the sixty-fifth year of his age. He married, in 1848, Katherine Hobson, the daughter of a medical practitioner, and the sister of a medical friend. She died in the year 1859, and by her he had three children, a daughter who died in infancy, and two sons who survive their father.

GEORGE FREDERICK FOX, Esq.

It is with great regret that we have to record the death of another member of our profession, Mr. George Frederick Fox, of Gloucester, at the early age of fifty-four.

Mr. Fox was a son of the late Robert Were Fox, of Exeter. He entered the profession, first, as a pupil of his brother, the late

Robert Were Fox, of Bristol; subsequently for about four years prior to his establishing himself in Gloucester he assisted his father.

He was for some years a member of the Odontological Society, but from inability to attend its meetings resigned his membership a few years since. He received his Diploma of L.D.S. in 1863.

Being possessed of remarkable energy of character, he, in addition to the burden of an extensive practice, was an active worker in many movements, whether local or general, of philanthropic nature, and there is no doubt that he greatly overtaxed his powers. He died at Southport, in Lancashire, whither he had gone in the hope of a restoration to health, on the 30th March, leaving a widow and ten children to deplore his loss. His son, W. H. Fox, L.D.S., continues the practice.

THOMAS HANKIN, L.D.S., M.O.S.

We have to record also with sorrow the death of this excellent and amiable practitioner, who, like his predecessor Mr. Laurie, died very suddenly at his residence, 19, Queen Anne Street, on Friday, April 21st, aged forty-two.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

MR. TOMES ON THE NEW DENTAL SOCIETY.

To the Editor of the 'British Journal of Dental Science.'

Sir,—If, after the publication in your last number of my son's letter (in the matter of which I fully agree), you think the enclosed is worth printing, it is at your disposal.

Yours faithfully,
John Tomes.

Upwood Gorse, Caterham Valley,
Surrey.

Upwood Gorse, Caterham Valley,
Surrey.

Dear Sir,—While thanking your father and Mr. Napier for my nomination, I must at the same time decline the proffered membership of "The Association of Legally Qualified Dental Surgeons," and I do so under the firm conviction that an exclusive association constituted as this one appears to be, will be powerless for good, but capable of doing great mischief.

The position taken by the Association will be regarded as an offensive assumption of superiority on the part of its members, for which there is no justification. A party will, doubtless, be formed to antagonise any influence it may seem to acquire, and the profession, hitherto in a state of concord and educational progress, will be formed into two hostile camps, to its great detriment and dishonour. Old friendships will be broken up, confidence will be succeeded by distrust, and then it will be too late to inquire who cast the first stone.

Yours faithfully,
JOHN TOMES.

S. HAMILTON CARTWRIGHT, Esq.,
Hon. Sec. the Association of Legally
Qualified Dental Surgeons.

MR. FELIX WEISS AND THE 'DENTAL COSMOS.'

THE subjoined letter from Dr. White is so strongly worded, especially at the end, that we could not feel justified in publishing it without the consent of the gentleman so harshly attacked. With that kindness and consideration which characterises all Mr. Weiss does, he at once relieved us of our dilemma by sending the note which follows Dr. White's. We cannot but compliment Mr. Weiss upon the course he has adopted, and feel sure that, even with those who do not know him personally, he will suffer no loss of estimation through such a letter as Dr. White's. With every desire to afford that consideration to a brother Editor which Dr. White claims, we cannot but regret the tone he has adopted. It is true, as he says, that he has made sundry acknowledgments and apologies, but they were accompanied by such offensive personal remarks that it was not to be wondered at that Mr. Weiss somewhat resented them. Undoubtedly much of the misunderstanding arose from the arrangement of the table of contents in the November 'Cosmos;' and, indeed, it was only very recently that Mr. Weiss was aware that that arrangement was an evident error in that particular number, as we proved to him by the production of other issues which he had not seen. We feel sure that if Dr. White knew the writer of 'Vernon Galbray,' as he is known amongst us, he would be the first to regret that this little effort to do good unseen should have resulted in so much unpleasantness to its author.

To the Editor of the 'British Journal of Dental Science.'

DEAR SIR.—I ask pardon in advance for obtruding upon your readers even the briefest possible rejoinder to the letter of Mr. Weiss in your March issue.

In my previous communication I stated distinctly that the review was neither written nor suggested by me, but was received from a correspondent; acknowledged that its publication was an inadvertence, and apologised to the firm interested, disclaiming any intent or desire to reflect upon them. I had, moreover, written to the same effect to the 'Monthly Review'; had published the cards of the Messrs. Ash and of Mr. Weiss in the 'Dental Cosmos'; and had made an editorial statement of the same tenor, which was also embodied in private letters to Mr. Weiss and the Messrs. Ash, thus making every possible reparation which ought to have been expected or desired.

Mr. Weiss, evidently desiring to convict me of falsehood, asserts, and in repeating the statement "affirms," that the objectionable review "appeared in that part of the journal called editorial." This in spite of the fact that it was published in the department of "Hints and Queries"—a department as distinct as any in the journal, and in spite, too, of the fact that it appeared in company with six other articles, three of which were over the initials of their authors, and three signed with the full names of the writers. Mr. Weiss knows, moreover, that his own communication and that of the Messrs. Ash appeared subsequently in the same department; and yet for the sake of making his point, he affirms to a statement which is excusable only on the theory that his stupidity is equal to his impudence. These are harsh words, but Mr. Weiss has seen fit to canvass my statement, arguing, inferring, and quibbling with the avowed object of throwing doubt on my veracity, making assertions which, failing to criminate me, convict him of the gross offence of disseminating an unfounded and dishonorable charge against me.

Yours truly,
J. W. White,
Editor 'Dental Cosmos.'

Philadelphia; March 27th, 1876.

To the Editor of the 'British Journal of Dental Science.'

Dear Sir,—I beg to thank you for your note enclosing a copy of a letter you have received from Mr White, of Philadelphia, and asking whether I object to your publishing the same.

I can only reply that you are at liberty to publish any communication Mr. White may entrust to you.

I have nothing to add to what I have already written, nor have I anything to retract; the correspondence is before the profession, and they will be able to judge whether I was justified in the course I have taken. I simply repeat with that "stupidity only equalled by my impudence," that in the table of contents of the November number of the 'Dental Cosmos' "Hints and Queries" is classed under the heading "Editorial."

As I have not had any practice in bandying personalities Mr. White has the advantage of me. I must therefore decline any further correspondence with him on this subject.

Yours very truly,
Felix Weiss.

7, Montague Place, Russell Square.

To the Editor of the 'British Journal of Dental Science.'

Sir,—In the year 1852 I was in partnership with Mr. Spence Bate, F.R.S. During the time he filled two teeth for me with leaf gold, which he kept submerged in a glass vessel. The teeth are now after twenty-four years' "hard work" apparently as good as ever.

I am, &c.,
Fred. J. Clouston Scott.

Swansea; 10th April, 1876.

To the Editor of the 'British Journal of Dental Science.'

Sir,—In your last month's journal I noticed an anonymous letter, signed "Contemplor," complaining of the manner in which the Dental Hospital was imposed upon by the introduction of patients not of the necessitous class. I would remark that the fault does not rest with those who have the immediate management of the Hospital, but with the Governors who have the power of giving away the tickets of recommendation, and it is their duty to see that they are given to those only who are deserving of them.

The officers of the Dental Hospital use their power as much as possible in maintaining the rule your correspondent alludes to, and I myself, as an old student of that Hospital, can testify that I have often seen an officer expel a patient because he or she did not appear a fit subject to receive the benefits of such a charity. Wherever there is a public charity we must always expect it to be imposed upon to a certain extent in some way; but I have no hesitation in saying that this institution is much less abused than the generality of them. Although the grievance mentioned by your correspondent is one which is worthy of consideration, and ought to be prevented as much as possible, still there exists a practice at the Dental Hospital of London which I consider a far greater abuse of that institution, namely, the introduction of strangers belonging to that class of practitioners who are not in any way a credit to the profession which they follow, and, although holding no qualification whatever, and not even members of the Odontological Society, have the audacity and cheek to present themselves at that Hospital, where they are admitted as visitors and witness the operations.

I have frequently seen men of this class admitted there, who have stood by a student in the stopping-room and have watched the whole process of plugging a tooth with gold. This has frequently happened to myself, and on making inquiries I have found they have belonged to the class of practitioners above-mentioned. I have also found these said gentlemen have been exceedingly troublesome with their numerous questions. They have also had a great affinity for witnessing the operations under gas. This is as valuable to them. I take it, as any practical demonstration could be, and by one or two visits an individual may pick up a rough idea of how the thing is done, which he may improve upon at leisure. Is it right or just to the students of the hospital, who pay for their practice, that this class should be allowed the privilege gratis. I maintain that the profession generally is wronged by the existence of this state of things; and it ought to be made one of the standing and strict rules of the Dental Hospital, "That no person be admitted to witness the operations at this hospital unless he be a duly qualified practioner."

I am, &c.,

G. H. H.

To the Editor of the 'British Journal of Dental Science.'

Sir,—The copied report in this month's Journal of the election of members of the Odonts. (the logical part I fail to see) recalls the past experience of myself and friends, and may be some consolation to the defeated candidate to know they did it then as now. When the College party were taken over I asked, among others, to be allowed to join, but was objected to on account of being an assistant. I afterwards took the L.D.S., and again stated my wish, but still was answered ineligible. I pointed out three names on the list who were in the same low grade as myself; one was L.D.S., the others not; but the only answer was, they knew nothing about it; that was the way they did it. Being one of the despised and rejected according to their lights, having worked out my redemption of slavery, went into practice, and observing an advertisement for Assistant Dentist to the hospital I called upon a former employer, who was one of the Medical Board, to see if I should have any chance, when he informed me it was already promised to Mr. —, and only required ratifying by the committee, which was done. I asked the use of advertising for candidates, and was told it was necessary according to the bye-laws, and did I mean to insinuate it was not above board? The only echo was "Them's my sentiments." The house surgeoncy became vacant; a friend sent in his testimonials, he being a former student and L.D.S., but was defeated by the election of one who, at the time, held no qualification, and that was the way they did it. I had stupidly imagined the party were acting on a more liberal basis, for recently a pupil of mine who has just taken the L.D.S. was asked by the Dean to become a member although he is an assistant, but recent events show how fallacious my ideas must have been, for whatever may have been the unprofessional conduct brought against the defeated candidate at the last election I do not know, and in the face of facts it would be supererogatory to inquire, when at the same meeting a gentleman is elected whose name appears under a most sensational heading in a paper I enclose you (certainly within the prescribed time of the rules of that Society), but that's the way they do it. Yet I observe the defeated candidate is one of those elected on the Committee of the Dental Reform, which would lead one to suppose it was intended as a facer for the clique, and "not so bad as we seem." And yet there still appears to be some undermining at work by the invitations issued to the hospital dinner, when gentlemen, who had hitherto been stewards, were this year refused a ticket, the reason assigned being they did not come under the following heads:—Subscribers, member of the odonts, licentiates, or student. Why men in practice should be excluded when students are admitted I fail to see the justness of. It was a public dinner, and the eating of salt with chiropodist, chemist, and any agent, proves it. Therefore the Dinner Committee did not act liberally by refusing most respectable members of the profession. They have yet

"To press their brother to his food,
And learn the luxury of doing good."

Perhaps another twenty years will realise the dream of

Yours,

April 11th, 1876. Rip Van Winkle.

To the Editor of the 'British Journal of Dental Science.'

Sir,—Does the L.D.S. Diploma confer on the holder the right of administering anæsthetics, for the subject is so closely allied with Dental surgery that every change of medical opinion as to the relative safety of the various agents affects the Dentist much, for no good-class practice can to-day be carried on without being always prepared with an anæsthetic and to assume a great responsibility, for even if a special chloroformist be retained it is the Dentist in whose practice a death occurs that will be the greatest sufferer.

Every journal is teeming with reports on the subject, none decided and many very contradictory in their views, and through it all the ever-increasing demand for painless operations continue, for though it would be a great misfortune if a casualty were to occur in the present state of public opinion, yet the class of patients who will bear pain get less and less, and the Dentist (frequently unqualified) is driven by his circumstances to run grave risks, patient and Dentist in some cases knowing very little of the dangers into which they are running, and it says something for nitrous oxide that after being used so much so few deaths have been the result, and those few, I believe, have occurred with men of the highest talent, and in which every precaution had been taken that skill could devise. It is a matter of regret that the legal status of the L.D.S. diplomas has never been defined, and I much doubt if the qualification would carry the holder through an inquest. I am young, but I have never in private practice ran the risk, and I would strongly advise any young practitioner, no matter what his degrees, against ever administering an anæsthetic alone. The chloroformist's fee frequently absorbs the whole amount received, but better that than run the risk of blasting the future. I am, &c.,

LANE CLARK.

1, Upper Berkeley Street, West,
Hyde Park Square, W.

To the Editor of the 'British Journal of Dental Science.'

SIR.—In the interests of the Dental profession, and in support of the dignified position it is entitled to hold in the estimation of mankind as a scientific, useful, and humane calling, I beg to offer a few remarks on the proceedings of a Society connected with it, and on the report of the same.

It will be admitted I should think, that such institutions are supposed to hold their meetings with a view to the discussing of matter interesting to the profession at large, to the spread of professional knowledge, and for debate on scientific subjects.

It is with pain, therefore, that I have to instance a grave departure from the ordinary rule for guidance, and that in the proceedings of the Edinburgh Odonto-Chirurgical Society, as reported in your previous issue. I abstain from farther instancing that to which I refer, but would remark that such unseemly revelations ought never to have emanated from the presidential chair of any scientific institution, seeing that it was neither edifying nor instructive, while certain passages in it may fairly be held as too coarse for publication.

The delivery of such unsuitable matter may charitably be regarded as an error of judgment on the part of its author while under pressure for material to fill up his valedictory address. The best of us may, at a time, make such a slip, and in taking this view of the subject let it be dismissed so far as he is concerned. Such palliation, however, cannot be extended to those entrusted with the adjustment of the Society's proceedings for publication. They have compromised the position of the institution over whose interests it was their duty to watch, and have infringed the rules of propriety by giving publicity to matter that might fairly be judged as too broad for even the license of post prandial small talk.

The intrusion of such into the reported proceedings of a society whose avowed and understood object is the advancement of Dental Science is nothing short of a compromise of the dignity of the profession, and a degradation of its position, deserving of censure, whatever may be urged in support or excuse of an act so unwise and so mischievous in its effects.

I am, &c., C. M.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Allow me to draw the attention of "Provincial Dentists" to the following circumstance, which is but one of many similar cases.

Lady —— consulted me last week relative to a root from which she had been suffering for some months past. Upon my recommending its immediate removal, and asking why she had allowed it to remain so long torturing her, she said she was afraid to allow any provincial Dentist to touch it, as her London Dentist, Mr. S., to whom she had written a month ago, had advised her to "*bear it—bear it*—BEAR IT!!! until your ladyship can return to me."

Such egotistical advice is only worthy of a Dental advertising quack. Of course no Dentist would blame another for cautioning his patients against such men, but for any man to insinuate that outside his little operating room patients are in dangerous hands is rather too much to bear without complaint. I need scarcely say that the obnoxious root was removed with little difficulty, and the patient said, "with much less FUSS than she SUFFERED from her London Dentist."

From twenty-three years' experience since leaving London I can state, with little fear of contradiction, that there are many qualified provincial Dentists who during the year meet double the number of intricate surgical operations than many of the most justly celebrated practitioners in London, and whose mechanical work also I have not yet seen surpassed for finish and skilful manipulation. This is only the natural result of living closely surrounded by one's own patients, who critically canvass all the professional acts of their provincial Dentist. For my part I am determined to expose the name and address of the next celebrated Dentist whose patients report to me such ungenerous and unprofessional conduct. I strongly advise my provincial brethren to do likewise.

I am, &c.,
GEORGE F. HARE.

2, Pery Square, Limerick;
March 28th, 1876.

To the Editor of the 'British Journal of Dental Science.'

SIR,—I beg so far to trespass upon your valuable space as to make a few remarks upon a subject engaging no little interest in the profession; I allude to that new Society whose object it is to so greatly improve the status of Dentistry. In writing this I represent a portion of the profession which has so far remained silent upon this topic—a body whom the subject concerns, if not more, yet quite as much as any other pertaining to Dentistry, viz. the yet unqualified.

The question arises to me, "Do the members of this Society who gather the skirts of their cloaks so tightly around them consider they are giving us that helping hand which the strong should proffer to the weak by alienating themselves from us in the pride of their qualifications?"

I will not enlarge upon the gross insult they cast upon those gentlemen whom the Royal College of Surgeons of England declare to be fully qualified to practice Dentistry, and to be fully informed upon all those portions of the human frame involved or likely to be involved in the practice of that profession; but I ask, Do those gentlemen who sanction the laws and objects of this Society consider it necessary to have the knowledge of how to apply an "Esmarch's" bandage before being qualified to extract a tooth? or to remove an ovarian tumour before eradicating a dental pulp? If one should be a fully qualified surgeon before setting one's self forth as a Dentist, why not follow that branch of surgery which has required more study to attain, and which is already at that status to which the Society in question so wish to bring Dentistry?

Is it not natural to us, that seeing one who has attained such an enviable distinction in the profession as has Mr. Cartwright, for instance, one to whom we have always looked as an adviser and instructor, join any plan—is it not natural, I repeat, that we should think, "It is right, for Cartwright says so?" and having, therefore, the difficulties placed *en masse* before us; considering that this huge mass of study, time, examinations, and money must be expended and got over before we ought to do anything more than is incumbent on an assistant, or before we could call ourselves respectable Dentists, determine to pursue some other profession. I do not say that such study as just enables a man to obtain his diploma should suffice, far from it; but Dentistry is not to be raised to a higher status by expending one's time on a subject not at all analogous to it. I maintain that, having received his diploma, a man should pursue more deeply still the study of Dentistry; that, and that alone, can gain the object for which the said Society profess to labour.

I can only arrive at one charitable conclusion in regard to this matter, which is, that these gentlemen are so jealous of their profession that their zeal has crushed their wisdom.

I can only hope that others of that body of Dental Surgeons to whom we look as helps and guides will not leave us to climb the ladder by ourselves, and so give a blow to their profession which will undo much of the work achieved by men who have fought hard for it, and kept their object well and wisely before them.

Looking to you for the continuance of that assistance you have so earnestly lent us in your protests, and with many regrets for taking up so much of your valuable space,
I remain, yours, &c.,
George Heaphy.

31, Sutherland Street, Pimlico;
March 30th, 1876.

Answers to Correspondents.

"Empiric."—Your letter is good, but you forgot to enclose your card; we publish no anonymous communications unless the name is sent, *in confidence*, to the editor. We should like to see you.

"Vigilans" had better communicate with the Secretary of the Reform Committee, James Smith Turner, Esq., 12, George Street, Hanover Sq.

"E. T. C."—You had better apply to Messrs. Ash, they have much experience in such matters.

"R. F. H."—We should advise you to apply to Messrs. Coxeter and Son, Grafton Street East, Tottenham Court Road.

"Student."—Please send us your name and address.

"H. A."—Oblige by giving us your opinion on the subject.

"Z."—Published by J. and A. Churchill, 11, New Burlington Street, W.

Communications have been received from J. W. White (Philadelphia), Thomas Fletcher (Warrington), John Tomes, F.R.C.S. (Caterham), Lane Clark (London), Fred. J. Clouston Scott (Swansea), "Rip Van Winkle," Felix Weiss (London), "C. M.," "G. H. H.," F. H. Balkwill (Plymouth), George Henry (Hastings), W. A. N. Hunt (Yeovil), J. J. Musgrave (Clifton), James Bate (Tiverton), James Stocken (London), Andrew Wilson (Edinburgh), D. Hepburn (Edinburgh), George T. Hare (Limerick), "X. Y. Z.," George Heaphy, D. A. Wormald (Bury), Charles L. Keys (Plymouth), "B. M.," R. F. H. King (Newark), Octavius Fox (Brighton), James Merson (London).

BOOKS RECEIVED.

'On the Treatment of Chronic Eczema by Glycerole of Subacetate of Lead.' By Balmanno Squire.

'The Induction of Sleep and Insensibility to Pain by the safe Self-administration of Anæsthetics.' By John M. Crombie, M.A., M.D.

'Medical Society's Proceedings,' vol. ii.

'The Daily Gazette for Middlesborough, Stockton, and District.'

'Transactions of the Odontological Society.'

'Deutsche Vierteljahrsschrift für Zahnheilkunde.'

'Le Progrès Médical.' 'Le Progrès Dentaire.' 'The Glasgow Medical Journal.' 'Victoria Magazine.' 'Report of the Montgomeryshire Infirmary.' 'Giornale Di Corrispondenza pei Dentisti.' 'Correspondenz Blatt für Bahnärzten.' 'Liverpool Daily Courier.' 'The Dental Register.' 'The Dental Cosmos.' 'Johnston's Dental Miscellany.' 'The Pennsylvania Journal of Dental Science.' 'Chemist and Druggist.' 'The Freeman's Journal.' 'The Malvern News.' 'Hull News.' 'The Dental Advertiser.'

British Journal of Dental Science.

No. 240. LONDON, JUNE, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London
Ophthalmic Hospital, and to the Central London
Ophthalmic Hospital.

(*Continued from p.* 239.)

Subsection 3.

Abscess of, or *Suppuration in, the Antrum,* may be induced by extension of severe catarrhal, syphilitic, herpetic, or variolous inflammation from the neighbouring nasal fossæ, and is probably, in such cases, partly due to the accidental closure of the aperture into the nostril by the swelling of the surrounding mucous membrane, or possibly by the plugging of the aperture with inspissated mucus. Caries of the teeth, the roots of which are in communication with the cavity; caries or necrosis of the alveolar ridge; the thrusting of a tooth into the sinus in an endeavour to extract it; injuries and lodgment of foreign bodies—these are all exciting causes of suppuration in the antrum. By far the most frequent cause appears to be the extension of suppuration from the root of a carious tooth, or from the periosteum surrounding it. A good instance of this is to be found in the following case of suppuration within the antrum in a scrofulous child, associated with necrosis of the alveolar ridge, which came under the care of the author.

A child, æt. 5, was brought to the Central London Ophthalmic Hospital on February 23rd, 1869, with an ulcerated aperture in the cheek, opposite the left malar bone. The child had a very unhealthy, scrofulous aspect, and the lower eyelid was completely everted by a cicatrix, the result of an old scrofulous abscess on the cheek, by which the eyelid itself had become in great part destroyed;

the skin of the cheek being terminated at its upper part by an abrupt cicatricial adhesion to the lower margin of the orbit. The probe passed into the fistulous opening on the cheek, met with bare bone, and, when thrust on, entered the antrum. Inside the mouth the left superior alveolar ridge was found to have a bare, ragged, and evidently necrosed surface, opposite two of the molar teeth.

On February 26th, the probe being passed into the aperture in the cheek, found its way through an opening into the mouth by the side of the molar teeth. Two of these teeth being found to be quite loose, they were extracted, and with them came away the necrosed portion of the alveolar ridge. This left a free opening into the antrum, from which a discharge freely escaped.

Dr. White, of Philadelphia, in the 'Dental Cosmos,' also gives the following account of a case of abscess of the antrum, caused by a decayed tooth. Dr. Garretson cites this case at p. 423 in his work on 'Diseases of the Mouth and Jaws.'

Mr. S—, æt. 20, light complexion (peculiar whiteness of the skin, a characteristic of the family), had been complaining for some time of a fœtid discharge from the right nostril, of heat, and a sense of tension in the right superior maxilla. He applied to his physician, who gave him a wash, with the belief that the parts would speedily return to their normal condition, he supposing the affection to be merely an increased discharge depending upon a slight local hyperæmia, the result, perhaps, of the bad state of the weather at the time. The parts, however, did not recover, the discharge became much more fætid, and evidently was principally composed of unhealthy pus, though it was not as copious as it had been previously; the pain was not severe, but the heat of the parts more elevated, and the sense of tension increased. The patient was irritable and pale; the heat of the body was rather above the average temperature. This was the condition of the patient when he came under the care of Dr. White.

Upon examining the anterior nares nothing could be discovered to account for the discharge, the mucous membrane being a little inflamed, but not sufficient to occasion it. A diseased state of the antrum was suspected, and the mouth was examined to ascertain if a diseased tooth could be the cause. The second molar, upper jaw, right side, was unsound; part of the crown was decayed away; the bulbous portion of the nerve and the filaments of the buccal roots were dead, but that in the palatine root was living, and occasioned the patient pain. A little arsenical paste was applied to destroy it. No sign of alveolar abscess was present in it or any other tooth; a careful inspection was now made, and important information was received. Upon examining the right nostril with a speculum, a little pus was seen in the middle meatus. The patient was requested to incline his head towards the left side; he did so, and upon looking at the parts again a large amount of pus was found. This, together with facts stated already in this paper, and that there was no other assignable cause of the discharge, were deemed sufficient to establish the diagnosis—abscess of the antrum, probably caused by the unsound second molar tooth.

Extraction was advised and submitted to. Upon the removal of the tooth no pus escaped. A probe was introduced into the alveolus previously occupied by one of the buccal roots, and readily passed on into the antrum; pus now followed the withdrawal of the instrument. The cure was completed on general principles. Dr. White concludes his description by remarking that this gentleman had repeatedly visited a *horse* belonging to his father, which had a profuse discharge from the nose, and which was thought to be *glanders*. The horse's malady was prior to that of the patient, and, of course, could only have caused him to fear that he had contracted the disease from it.

The retention of mucus from any cause is not uncommonly associated with or followed by suppuration, polypi of the nasal fossæ, or of the antrum itself, and tumours of any kind in its cavity or neighbourhood, may excite suppuration, and so complicate the case as to render the diagnosis very difficult. The following case of abscess, depending upon the presence of polypi in the antrum, occurred to me at the Central London Ophthalmic Hospital.

J. M—, æt. 31, a fruit and fish hawker, in good general health and well nourished, applied at the hospital on May 19th, 1868, with a sinus and ragged ulcer, situated near the lachrymal sac of the right side, but a little external to it.

History.—He said that he had for some time suffered from a watery eye, and that about Christmas last a swelling had formed in the region now occupied by the ulcer, which was opened two or three months ago by a surgeon and proved to be an abscess. This sinus was probed on several occasions by this surgeon, and about a month ago a small piece of very thin bone of about half the size of the thumb-nail escaped from it. At or about this time a fœtid discharge commenced from the right nostril, and this had continued ever since. His sight was little or not at all affected.

Present condition, May 29th, 1868.—In addition to the ulcer and sinus there is a slight fulness of the upper part of the cheek and side of the nose, and the eyeball is thrust a little towards the temporal side of the orbit. There is little or no overflow of tears. A probe passed into the sinus finds its way easily directly backwards to the apex of the orbit, and reaches a depth of a little over three inches. On a subsequent probing the same sinus was found to communicate with the antrum and nostril. No bare bone was felt in either direction. The nostril is obstructed, and there is a very offensive discharge constantly escaping from it.

Treatment and Progress.—Injections of a lotion containing one part of tincture of iodine to five parts of water were used with the india-rubber-bottle syringe, and the effect was to cause a free flow of mixed lotion and pus from the right nostril. This was done twice or three times a week till the morning of June 3rd, when he suddenly felt something in his throat and posterior nares, which he managed to cough up with much effort, and almost choking in the attempt. The material which he brought up consisted of four or five dirty-white lumps of soft, pulpy material, varying in size from that of a cobnut to that of a large walnut, and having the most abominably stinking odour. In the choking efforts to bring this up he swallowed some portion of the mass, after which he felt very sick, vomited several times, and was so much prostrated as to be obliged to keep his bed for the rest of the day. From this time, however, the sinus began to heal up, and by June 20th had quite closed. There was still a slight discharge from the nostril at this date, but his health had so much improved, and he suffered so little inconvenience, that he ceased attending the hospital.

The examination of the decomposed mass which had been coughed up gave no evidence of any structure whatever.

In the 'Edinburgh Medical Review' (October, 1867) a case is recorded as having been under M. Demarquay with symptoms of abscess (such as "the discharge of large quantities of pus through fistulous openings into the mouth and through the sockets of several teeth"), in which he removed the whole upper jaw, and, on examining the diseased part, found a bony tumour lying loose in the antrum, like the kernel of a nut in its shell.

The general health of the patient is almost always in fault. Scrofula, and the furuncular cachexia, are the most common forms of constitutional debility in which purulent inflammation of the antrum is likely to occur. Syphilis does not appear to be commonly associated with it, but the abuse of mercury is thought to have a predisposing influence, though the evidence on this point is very insufficient.

Abscess of the antrum has been caused in a newly-born infant from injuries received during parturition, the face having presented itself under the pubes (Druitt's 'Surgeon's Vade Mecum,' p. 431; and 'Medical Times and Gazette,' N.S., vol. iv, p. 860). I have myself seen two cases of abscess of the antrum in very young children, in whom I had reason to suppose the mischief was connected with injuries received during parturition.

(*To be continued.*)

ON NON-MALIGNANT TUMOURS OF THE GUMS.

Abstract of a Clinical Lecture delivered at the Dental Hospital of London, May 25th, 1876.

By ALFRED COLEMAN, Esq., F.R.C.S., L.D.S.

GENTLEMEN,—You have recently had the opportunity of seeing four cases of non-malignant tumour of the gum, somewhat indefinitely termed epulis. Before alluding to those cases individually, allow me to say a few words in regard to such growths in general. The most common form of growth situated upon the mucous membrane of the mouth is that we so commonly meet with in Dental practice, and which is, no doubt, only too well known to all of you, viz. a small growth springing up in direct relation to a tooth carious at or just below the surface of the gum. They are generally small, seldom extending above the surface of the teeth, flask-shaped (polypoid) in form, as are invariably soft growths produced in constricted cavities. They are very vascular, and bleed on the least pressure; more or less well supplied with nerves, some being very, others less, sensitive; in structure they are fibro-cellular, but chiefly cellular, and mostly excrete at their surfaces offensive serous fluid. Their cause of origin is, as you are doubtless aware, the irritation caused to the mucous membrane by an irregular edge of carious dentine, augmented by the slight movements the teeth undergo during mastication. If the cause of their origin be removed they soon disappear.

The second class of growth to which I will direct your attention is of more importance than the last, and distributed over a much larger surface, though not extending much above it. In structure it appears to be composed almost entirely of blood-vessels and loose cellular tissue, and might from its appearance, though not from its history (not being congenital), be regarded as a nævus; it appears to me to arise more from the vessels supplying the periosteum than from any other part. When removed, like all vascular tumours, it appears insignificant.

The third variety is after the first I have described the most common, and to which the name epulis is most commonly restricted. It usually appears as a firm, elastic, nodulated growth, springing up usually between one or more teeth, or from roots of teeth of persons of middle age, which, after a time, it considerably displaces; in colour it much resembles, especially in its earlier stages, and if it have not been interfered with, that of the surrounding mucous membrane; but when bitten on or otherwise subjected to pressure or irritation becomes marked by ash-coloured ulcerations. In structure it is found to be that mostly resembling fibrous tissue in progress of growth and development, *i. e.* bundles of white fibrous tissue and nucleated oat-shaped cells. It has its origin in the fibrous tissues of the periosteal and periodental membranes of the maxillæ, and mostly arises from some irritation conveyed by the teeth to those structures.

Another and fourth class, which has been regarded by some writers as only a variety of the above, are found in the same situations, but usually at an earlier period in life; they are less dense and elastic to the feel, and of a deeper colour. In structure together with the fibrous element is found, in more or less abundance, osteo-blasts—those large many-nucleated cells, characteristic of bone in active growth and medullary matter, and which has given them at the hands of Sir J. Paget their English designation of myeloid tumours. These have, no doubt, a deeper origin than those last described, viz. chiefly from the bone itself, and hence contain the elements of that structure in a state of growth, and in them, too, we more frequently find spiculæ or portions of bone. There are other and rarer forms of non-malignant growths found in the same situations as those I have described, but I need not trouble you with their enumeration, the excellent works of Mr. C. Heath and Mr. Salter will supply you with all that is at present known respecting them.

In regard to treatment, that of the first variety will offer us but little trouble; the method I adopt is that, no doubt, usually employed. Should the tooth or teeth, the cause of their origin, be worth preserving, the growth should be excised at or rather below its origin with a thin sickle-shaped knife; a plug of wood should then be thrust between the two teeth whence it springs, or if it be a solitary tooth, the bleeding gum may be pressed upon by the rubber-dam, and the bleeding being thus arrested, the tooth or teeth filled, especial care being taken to leave the filling perfectly smooth at the neck of the tooth; the cause of the growth being thus removed, it will not reappear.

The second, the vascular variety, is one difficult to deal with, as in removing it one is so liable to leave a portion of its substance, which soon originates a fresh growth, and a second product is more rapid in development than a first, and a third than a second; and this applies also to the two succeeding varieties, and which has led to an opinion of their at times being malignant, but so long as secondary glandular deposits are absent, we may happily exclude them from that class. A few weeks ago you saw me remove one of these growths from the mouth of a female aged about twenty years, and you noticed I took especial care to mark out before commencing the lines for my incisions, and that these were well clear of the growth, which was situated on the upper jaw on the left side between the lateral incisor and the second bicuspid; these and the intervening teeth I was very anxious to preserve, and preferred the risk of a return, although it would have been the third, the growth having, I learned, been removed on two previous occasions, to sacrificing them. I, however, took every care after the removal of the growth not only to scrape the exposed bare bone well with the gauge, but also to freely apply the actual cautery, and to follow this by strong nitric acid, which might reach any portions of the bone the former had not touched. A month after the operation showed some large suspicious vascular granulations springing up at one portion of the wound, and led me to fear my patient would suffer from my conservative desires, but with the frequent employment of powdered tannin they have quite disappeared, and we may hope the patient is now for ever free from a return of her trouble.

The fibrous form which after the mucous is the most common variety must be dealt with much in the manner just described, but the process is generally more easily effected. If it arise directly from the surface of the bone without involving to any extent the dental alveoli we may, as you recently witnessed, first thoroughly remove the growth with the knife, and after scraping the bone apply the actual cautery and nitric acid. In the case to which I am alluding the tumour, which had a constricted base, was situated on the right side of the lower jaw in front of the roots of the lateral incisor, cuspidati, and first bicuspid teeth, but did not appear to involve the alveoli, so that I was enabled to preserve those teeth. That case proved a very simple one. In one you had the opportunity of seeing a fortnight since, and upon which I should have operated last Thursday had the patient, as she promised, put in an appearance, there would have been greater difficulties to encounter. In the first place the growth was much larger, and had its origin from both internal and external surfaces of the right side of the lower maxilla, besides involving the alveolus of the lateral incisor, if not of those of the adjoining central and cuspidati. My plan of operation would have been first to remove the misplaced lateral incisor, and then, with a knife, having its blade at right angles to the handle—hoe-shaped, in fact—have severed the mass from its posterior attachment, and, after, with an ordinary scalpel from its anterior. With the pair of bone forceps I hold in my hand, specially constructed for such cases as these, where the alveoli of teeth are implicated and where we desire to save teeth which are not involved, I should have excised a considerable portion of the alveolus of the lateral incisor, some of those of the adjoining teeth, as well as scraped the surface of the exposed bone generally, completing, as before, with the actual cautery and nitric acid. A case I operated upon some four or five months ago was, you remember, even larger than this, and I had then to sacrifice several teeth and excise a considerable portion of the bone; it was situated on the left superior maxilla, and was larger than one generally sees now-a-days.

Patients usually apply for relief as soon as the growth becomes bitten on by opposing teeth, if not earlier; but before the days of anæsthetics they often did not do so until it had assumed the gigantic proportions and produced the disfiguring effects you may see delineated in surgical treatises.

The fourth variety, the myeloid, of which I have not met with a case at this institution for some three or four years, I should treat much in the same manner as the foregoing, only I should have less hesitation in removing teeth and should be more free with the gauge, bone forceps, and cautery. The last case I operated on was on the person of a little boy of eight years of age, and it was situated on the right side of the lower jaw. The growth and bone when removed exposed to view the crowns of the cuspidati and bicuspids, but whether these were after exfoliated I was not able to learn. Hæmorrhage after these operations may sometimes give you much trouble; ice and iced water, with the aid of pressure on the carotid of that side, will generally prove the most efficient means for arresting it. The actual cautery is by some strongly advocated, but you must have noticed at the last operation, after cessation of hæmorrhage from cold water alone, how the application of the heated iron for another object immediately caused a free stream of blood to flow from the vessels.

In listening to as well as witnessing my treatment of these cases, it may have occurred to you that it is somewhat unnecessarily severe, and that, at least in the ordinary uncomplicated ones, a removal of the growth and scraping of the bone might suffice, and it is possible that in many such it would; but I would rather in a few cases treat them with unnecessary precaution than run the risk of a return of the growth, and why I would especially urge upon you dealing with these cases so thoroughly is because, as you must have noticed, that in so large a proportion the patient has informed us either "that it has been cut once, twice, or even thrice already," or if not cut, "burned with caustic." The public, and especially the unintelligent public, have an alarming dread of a tumour which after operation reappears, and it is far better for you to sacrifice unnecessarily a tooth, or make a wound a little larger in size, or that will take longer to heal, than, by erring in the opposite direction, inflict upon your patient and his friends all the terror and anxieties a recurring tumour is almost certain to produce.

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 173.)

Hæmorrhage in the Mouth.

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1. *Hæmorrhage after tooth extraction.*—When we come to consider the number of teeth it is found necessary to extract, and the few cases in which any serious hæmorrhage follows, the percentage is so small that any detailed account of these occurrences might at first appear to be hardly worthy of our consideration. But it is the very rarity of these accidents that makes their occurrence the more distressing, and the successful treatment that has been adopted to arrest this bleeding deserving of attention. I would begin by remarking that the improvements made in the construction of forceps and the discontinuance of the use of the key in my opinion has greatly conduced to the reduction of such cases. At least, hæmorrhage after tooth or stump extraction is of very rare occurrence and the bleeding is usually so easily arrested, that the enlightened Dental Surgeon should never be at a loss to understand the successful treatment to be pursued.

It is not my intention to enter into any dissertation on the constitutional condition that causes a predisposition to hæmorrhage, whether it be a want of coagulability in the blood or the vessels having lost their power of contracting. It is always well to see that the bleeding has ceased in all cases where the blood is watery and refuses to coagulate, or the patient is known to be of a hæmorrhagic diathesis. For this reason I prefer seeing the blood that passes from the mouth, and although a white basin may not be so sightly as a coloured one, yet it gives us an opportunity of judging of the condition of the part, and if any pus is discharged it may be more readily detected. The blue conical-shaped spitting stands in which the blood is carried away instantaneously, and its character disguised, appears to me to be very objectionable. Where an extra amount of bleeding occurs it is also advisable to consider the age of the patient should any untoward symptoms present themselves, for if the vessels have lost their power of contracting or the blood is incapable of coagulation, the life of the patient may be endangered.

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In my own practice I have met with three interesting instances of hæmorrhage in the mouth, two after tooth extraction, and one in an anæmic patient where spontaneous bleeding proceeded from the side of a bicuspid. All these cases appear to me to be sufficiently characteristic to merit recording in these notes.

The first was that of an unhealthy looking boy employed as a help at a lodging-house in the neighbourhood; hard-worked during the day and obtaining an inadequate amount of rest at night. The tooth was a lower molar and extracted without any difficulty, but the youth was not five minutes in the house and so alarmed at being away that he left before the bleeding had ceased. The tooth was extracted at about 9 o'clock in the morning, and on the following day at about the same hour he returned, looking terribly blanched and so weak he could hardly walk. He stated that the bleeding had never ceased and that he had been awake all night, fearing to go to sleep. The hæmorrhage was certainly one of the most simple of its kind, and was immediately arrested upon the socket being plugged with a very narrow strip of lint slightly moistened with the strong solution of perchloride of iron. I made the boy lie down, sent a message to the house where he was employed to allay his anxiety at being away, and in less than an hour he was able to resume his work. He had no return of the bleeding, and in three days I took the lint plugging away. Upon cross examination he confessed that upon a former occasion he was obliged to go to the hospital he bled so profusely after a similar extraction.

My second case very fairly illustrates the carelessness, or I may more correctly say the ignorance, displayed by some general practitioners in matters of this kind.

I was called up at about 5 o'clock in the morning, in the month of June, 1865, to see a young lady, aged about fourteen, whom the messenger represented was "fast bleeding to death." Upon entering her chamber I was somewhat astonished at the scene presented to me. The patient was lying on the bed in a semi-comatose state, her feet and her head being surrounded with ice, and her mouth nearly filled with coagulated blood. The different members of the family were grouped around, but so overwhelmed with grief as to be incapable of affording any assistance. By degrees I was able to glean the following history of the case:—The girl had had a tooth extracted somewhere in the country; but upon her returning home some hours after, the bleeding had recommenced. At about four o'clock in the afternoon, a general practitioner residing in the neighbourhood was sent for, who—as far as I could learn—had tried to arrest the bleeding by the application of a mouth-wash. Three hours later, this not having had the desired effect, he was sent for again, and he applied something to the surface of the gums, but did not succeed in arresting the bleeding. At 12 o'clock at night he paid a third visit, and then stated that the case was a very unusual one, that he had done all in his power to check the hæmorrhage, that if the bleeding continued they had better be provided with some ice, which they should apply to the mouth; and if that was not successful, to her feet also. Becoming much alarmed, the girl's mother at 4 o'clock in the morning once more sent for their medical adviser, who replied that he could not do anything more, and advised the application of the ice to the head and feet.

Such were the particulars told to me by the surrounding relatives; and I learned also that the patient was a strong muscular girl, and accustomed to a good deal of out-door exercise. The first thing I ordered was the immediate removal of the ice, both from the feet and the head, and got the patient between the blankets, at the same time directed one of the family thoroughly to rub her feet, using a little brandy which happened to be at hand, in order to stimulate the return of the blood to the feet. I then proceeded to make a careful examination of the mouth, and found that the first upper molar on the right side was the tooth that had been extracted. The blood appeared to be of fair coagulating power, but I had a good deal of difficulty in getting the patient to allow me to clear out the mouth. I then found that the bleeding was not very considerable, although evidently 22 the girl had already lost a large quantity. As she had retained the tooth, and the fangs were pretty straight, I determined in the first instance to cover them with a small piece of lint wetted with the tincture of the perchloride of iron, not having any of the solution (which I like better) with me, and to drive the tooth forcibly into the socket. I mention these particulars, as I know that this method of proceeding has been advocated by some, but I must say in this instance it was not successful; indeed, I should never advocate using any but a single-fanged tooth as a plug, excepting perhaps a lower molar, where the fangs are short and perfectly straight, but certainly not in the case of an upper molar, where it has the three fangs divided. I should prefer using lint or matico leaf firmly packed in all double or triple-fanged cases.

As the blood continued to ooze, more particularly from the palatine socket, I removed the tooth and taking some long narrow strips of lint moistened with tincture of iron commenced to pack each of the sockets separately. I then took a block of gutta percha slightly warmed on the surface and drove it on to the lint between the second bicuspid on the one side, and the second molar on the other, and brought the jaws together. In this condition I left the patient for an hour, directing that the gutta percha should be kept firmly in its place and the mouth opened as little as possible. At the end of that period I returned, and upon taking the gutta percha away found a small quantity of blood which appeared to possess but little fibrine, oozing from the palatine socket. I therefore removed the lint from this cavity but did not touch the other two pellets. Upon taking the plug of lint away the blood could plainly be seen slowly trickling from the base. Remembering one of those valuable lectures "On the Medical History of the Teeth," by Dr. Richardson, in which he suggests as a chemical styptic to produce the speediest coagulation, nitric acid, I determined to try it in this case. I first of all syringed out the cavity with water, to which a few drops of acid had been added, and then applied the nitric acid in the proportion of one part acid to two of water on a pledget of 2 lint, returning the gutta percha to its place again, and left the patient. When I returned I found she had fallen into a sound sleep, but upon opening the lips I could not see any indication of blood, and her pulse was regular, and stronger than I expected to find it. She had no return of the bleeding, and two days afterwards called to thank me for my attention.

I think in this case we must attribute the unpleasant symptoms that followed the tooth extraction, more to the particular period of life in the patient, than to her being of a hæmorrhagic diathesis, for a tooth had been extracted some years before, and one has been removed since without any hæmorrhage. It must never be forgotten that it is usually more difficult to arrest a bleeding that has continued for some hours, as the blood becomes deteriorated, its volume in the circulation being made up by the water from the tissues.

The carelessness displayed by some medical men in mouth hæmorrhage, makes it imperative that the Dentist should clearly understand that the responsibility rests with him in cases where profuse bleeding follows tooth extraction. Very lately I had occasion to remove two loose lower teeth surrounded by inflamed gum, from an old lady's mouth. When the patient arrived at home, the bleeding returned, and as it had not subsided by night she sent for her usual medical attendant who prescribed a simple astringent mouth wash, but the bleeding continuing all night, in the morning, in a very alarmed state, she called upon me. In less than a quarter of an hour the hæmorrhage was thoroughly arrested under proper treatment.

(*To be continued.*) End page 23

ON ODONTALGIA AND NEURALGIA.

A paper read before the Dental Students' Society, March 13th, 1876.

By R. Birt, Esq.

Mr. President and Gentlemen,—When I promised to read a paper before you some time this session, I little thought of the responsibility that I incurred in so doing, and my incapability to fulfil that promise as I should wish; however, I hope that my poor words will give as much pleasure to you, as the endeavour to fulfil my promise to the utmost has afforded me.

The subject that I propose to bring before you for discussion to night, is that of the symptom pain in lesions of the teeth, and those states of the system that give rise to the symptom without first apparent lesion of those organs.

When pain is felt in the teeth themselves, it is known by the term odontalgia; but when from some constitutional cause, the pain is reflected to the terminal branches of the nerves in the face, it gets the term facial neuralgia, or tic douloureux.

In any case the pain must not be considered to constitute the disease, as it is only a symptom, and often a very uncertain one, of some functional disturbance, or structural disease of the teeth themselves; or other parts of the system, which affect the teeth by either causing some important change in the common blood supply, and thus tend to morbid changes in the soft parts of the teeth, as the pulp, periosteum, gum, or those states in which the function of some organ is impaired, as the digestive, or cutaneous, and those conditions which secondarily affect the nervous system, as debility, rheumatism, gout, &c.

And again, the degree, duration, and character of the pain, not only varies according to the condition of the part in which it is felt, and to the cause which gives rise to it; but it is variously modified by many conditions of health, or states of the system; as the plethoric, anæmic, cachectic, nervous, and febrile states.

That it greatly varies in character may easily be imagined, thus we find it described as being either dull, deep-seated, intense, throbbing, lancinating, gnawing, boring, burning, or grinding, &c.

In degree it may not be more than a sense of discomfort; on the other hand, it may be so severe as to deprive the sufferer of all rest and enjoyment, and in some cases, of such agony as to cause the sufferer to attempt his life.

It may be gradual in its accession, or quite sudden. It may be nearly continuous, or intermittent. It may only affect one tooth, or many. It is to a great extent by these characteristics, diagnostic of the morbid state which gives rise to it. Thus, a gnawing pain, becoming more intense, and throbbing with increased pain on pressure, is symptomatic of acute inflammation; which, in the case of the pulp being so affected, is usually very intense; often coming on quite suddenly, and ceasing in the same abrupt manner.

In the case of the periosteum, the throbbing is at first absent, and the pain commences gradually, is of a dull, deep-seated character, of much longer duration, and nearly equably continuous. It is also, except in the first stage, increased by pressure, and in the latter stages intensely throbbing. Pain that is due to irritation or chronic inflammation of the pulp is very various in character, and is seldom continuous. It is often quite reflex or sympathetic, and is greatly influenced by the condition of the patient. Neuralgic pain is often relieved by pressure, is often acutely lancinating, is often intermittent, is often out of all proportion to any apparent cause, is intense, according to the debilitated state of the patient, is usually felt at some distance from the lesion that gives rise to it, or rather excites it, is often to be relieved by treatment that would aggravate that arising from inflammation.

The local causes of odontalgia are the various morbid conditions of the pulp and dentine, of the peridental membrane, and cementum of the gums, and periosteum of maxillæ, including the alveolus, and irritation of the Dental nerves from some cause that is not outwardly apparent.

In the morbid conditions of the pulp we get irritation, inflammation, and sphacelus as the most common excitants to odontalgia.

Irritation we get from external causes and from internal causes. Among the latter are increased sensibility from sympathy with other diseased teeth, and states of health that affect teeth, as rheumatism, common catarrh, &c. Again, intrinsic calcification of the pulp, osteo-dentine, a form of secondary dentine that commences in the formation of specks of calcareous matter in the substance of the pulp; these calcification islands, as they are called, in the course of time increase in number and size, and coalesce to form a larger or smaller nodule, as the case may be; this nodule is unattached to the wall of the pulp-cavity and often quite loose. It may possibly loose its vitality, and so become a foreign body; or it may, from the fact of its being loose, set up irritation that way; however, it is often the source of irritation and considerable pain, which may be quite reflex, though the cases that I have seen, where pain has been traceable to this cause, have been nearly, if not quite, local, the pain coming on gradually, extending over a long period, and is described by patients as being of a wearing grumbling character. Among the external causes of pulp-irritation causing increased sensibility are any of the lesions of the enamel or dentine, as fissures, caries, erosion, abrasion, fracture, absorption, or when a tooth has been filed and a large surface of the dentine left in a rough state. Anyway, teeth left with a surface of dentine unpolished are, as we well know, often very sensitive to external influences, such as pressure, friction, sensations of heat and cold, acids, sweets, salts, &c., and frequently give rise to so much pain in this condition that patients carefully avoid using that side of the mouth on which the tooth is situated. When the wall of dentine, which at present shields the pulp, becomes very thin; or if a metal stopping is put into a tooth thus sensitive, the irritation may be sufficient to cause acute inflammation of the pulp with its sequelæ; but more often the result, for a time at least, is more favorable. The odontoblast cells of the membrana eboris resume their function, and extrinsic calcification of the pulp takes place, dentine of repair; this removes the pulp further from external influences at a part nearly corresponding to the external lesion, but at the same time the calcareous specks in the substance of the pulp increase, &c., and the two processes may go on, till in some cases the two forms of dentine join, become amalgamated, so to speak, but, as I said before, the latter may be the cause of pain. If the external lesion be caries, as most often it is, the disease usually proceeds much more rapidly than the reparative process, and as a consequence the pulp itself becomes exposed to external influences; but sometimes before this takes place the surface of the pulp may break down and form pus, a state of things minutely described by Mr. Salter, who says it may be formed and long retained in the pulp-cavity without emission; but sooner or later the pus exerts pressure on the still living pulp and gives rise to intense throbbing pain. I have seen cases where this has clearly been the case, and the teeth were very sensitive to pressure and the cause of great pain, but cases where I have far more commonly seen pus contained in the pulp-cavity have been those where a stopping has been unsuccessfully put in over an exposed pulp, which either must have been suppurating at the time the tooth was stopped, or the pressure of the stopping was sufficient irritation to cause such a state of things. When the pulp-cavity is laid open the pulp most commonly becomes subacutely inflamed at the exposed portion, irritable, with a suppurating surface, and very often the cause of severe neuralgic pain.

In other instances of very little pain at all, except when under irritation; and the sources of irritation to a pulp in this condition are very numerous: the pressure of foreign matter in the carious cavity, or pressure from the tip of the tongue, or when food is driven into the cavity during mastication, cold, or hot fluids, cold air, sweets, and acids, &c. It is usual for the pain in the first stages to pass soon after the removal of the irritant, but after a time the pain remains longer after the removal of the irritation, till sooner or later an attack of toothache is set up owing to acute inflammation. The pain is usually of a gnawing character, which soon changes to throbbing, and is diffused into surrounding parts and adjoining teeth; but it remains most intense in the original tooth. There are many conditions which influence the degree and duration of the pain even then; the size of the pulp, the state of the health, the size of the opening into the pulp-cavity, as well the age and the natural susceptibility to pain. Thus, a small pulp and a large opening into the pulp-cavity are both favorable for a less degree of pain; on the other hand, a large vascular pulp and a small opening into the pulp-cavity are favorable for a greater degree of pain. The reason is obvious, a small opening will not allow the pulp to swell when effusion takes place, as a consequence of inflammation. A large pulp will swell more, and, of course, a larger amount of tissue is involved. Then as to constitution, in plethora we should get a more marked case, with greater constitutional disturbance, and most likely the pain will be of shorter duration. On the contrary, in those states of debility with a deficient supply of blood the pains will be more diffused, the case will not run such a rapid course, and though the pain may be more intense, you often see these patients stand it far better than the others. As to age, in the young we get a large pulp and a large canal in the tooth-fang, and if very young a greater liability to constitutional derangement. I said that the pain was throbbing, this has been explained by the pulse; the walls of the pulp-chamber being unyielding; when the pulp swells there is increased pressure on the nerve fibrils, which are at the same time hypersensitive, and so detect any change in the fulness of the capillaries. Whether this be the right explanation or not, one thing is certain that any increase in the fulness of the vessels of the head intensifies the pain and causes increase in the throbbing; thus, when people lie down, or increase the circulation by violent exercise, the pain is apt to become intensified; on the contrary, anything that takes the blood from the head modifies the pain. There is one other condition I should mention; that is, the protrusion of part of the pulp through the perforation into the pulp-cavity; whether this be large or small, or whether it is much constricted at its narrow portion, will influence the pain to some extent; this is easily understood, if we remember that ligature is one of the causes of congestion. I said that sometimes the pain from an acutely inflamed pulp ceased somewhat abruptly; this usually is an indication that the pulp has lost its vitality. Though this course of things very often takes place, a pulp may become acutely inflamed from other causes, as violence to a tooth, fracture, exposing the pulp, &c. And acute inflammation is by no means the only result of chronic inflammation; the pulp may remain in this latter condition for a long period irritable, with a suppurating surface, at any time liable to give rise to severe odontalgia or neuralgia, or the surface may become the seat of a very sensitive ulcer, or the pulp may gradually waste away, till at length it disappears from the pulp-cavity, or if the exposed surface be large, with the combination of a weakly organisation, the pulp may grow into a sort of polypus, in which the true histological condition of the pulp is lost, the polypus being nearly insensitive, and in appearance more or less resembles the surrounding mucous membrane; the whole surface usually emits a very fetid discharge, sometimes the surface ulcerates, and then is very sensitive. When a tooth is fractured, exposing the pulp, it sometimes sprouts into a sort of polypus, but in these cases is extremely sensitive to friction, heat, and cold, &c., and is a source of great pain to the sufferer. One thing common to both is their persistence; they quickly return if cut away, and so do not admit of conservative treatment.

In the morbid states of the periosteum of the alveolus, the intra-alveolar membrane or periodontum, we get general inflammation affecting both this membrane and the periosteum of the maxillæ; also local inflammations of the intra-alveolar membrane and their sequelæ, as causes of odontalgia.

In the general periostitis, although it arises from many causes, the first symptoms are nearly the same, and are manifested in the teeth; these feel uneasy, and there is great tendency to press them together, which seems at first to give relief, but soon they become very sensitive to pressure and to sensations of heat and cold; there is constant dull aching pain of a deep-seated character; inflammation becomes apparent in the gums, with effusion into surrounding tissues, and swelling of the face; the teeth become raised in their sockets, and the least pressure on them now gives excruciating pain; there is more or less constitutional disturbance, and very often trismus or tonic contraction of the muscles of mastication. The causes are rheumatism; the poison of the exanthematous diseases, especially scarlet fever; the fumes of phosphorus; the presence of mercury in the system; many decayed teeth in unhealthy subjects; the difficult eruption of the permanent set. In strumous children it may occur idiopathically, and it sometimes happens as one of the sequelæ of syphilis.

The results and after-symptoms of the disease differ widely according to its origin, &c., but as it is impossible to do justice to such a vast subject in a short paper, I must be content with saying that active treatment, based on a right diagnosis, will often prevent disastrous results.

Of the local periostitis there are two chief divisions—active, acute, or suppurative, so named from its tendency to pass on to suppuration, and the formation of alveolar abscess has already been ably treated and discussed here this session, so I need not allude to it further.

The chronic form, passive, or plastic periodontitis, or inflammation of the intra-alveolar membrane, owes its origin to various causes, of which the most common are the presence of a sphacelated or decomposing pulp or pus, food, or other irritating substances in the canal of a tooth fang; but when arising from these it is exceedingly apt to take on the more active form, or it may remain as a sequelæ of the acute inflammation. Other common causes are, the irritation of tartar around the necks of teeth, a ligature around the neck of a tooth, badly adjusted bands or wires, oblique pressure as from an antagonistic tooth, excessive pressure as when a stopping is left too high or an artificial bite is uneven, lateral pressure as in crowded mouths, or when anything is wedged in between teeth, the presence of a large metallic stopping in the crown of a tooth. It is sometimes the result of trying or wearying a tooth too long in the process of stopping, especially after a severe malleting; other forms of mechanical violence, as blows on teeth which may not have been sufficient to cause inflammation, a constitutional cause affecting a tooth weakened by disease, extension of inflammation from the gums, foreign bodies between the gums and teeth, as portions of fish bones, toothpicks, or the point of a clasp; it is not uncommon about a tooth that has lost its antagonist, and it seems in some cases to occur idiopathically, though Professor Wedl says we "have to do, first of all, with a catarrhal inflammation of the gums which afterwards extends to the root membrane."

Excepting the last, which is a disease *per se*, the course of symptoms in chronic inflammation bear great resemblance from whatever cause gives rise to it. The teeth are uneasy, sometimes painful, there are symptoms of change in the gum, especially if the crown of the tooth be nearly or altogether lost; there is often a red ring around the margin, they easily bleed, and pressing the gum over the root often gives rise to pain. In due course the alveolus becomes absorbed, the gum recedes, the neck of the tooth exposed, and in course of time the tooth loose, and is eventually lost. Teeth so affected are sensitive to pressure, to sensations of heat and cold, but chiefly pressure; indeed, percussion is our best means of diagnosis in absence of more marked symptoms. In some cases pus exudes between the neck of the tooth and gum, or, in Professor Wedl's words, "the edge of the gum becomes tumid, and a yellowish mucus oozes between the latter and the neck of the tooth." On any slight departure from health such teeth become really painful, all the symptoms become aggravated, the tooth becomes loose and raised in its socket, is very sensitive to pressure, and there is a continual dull, aching pain, which becomes intensified as the patient gets tired or exhausted. When the usual condition of health is regained the symptoms abate and the tooth returns to its usual condition. As the result of this constant irritation, change generally takes place both in the membrane and the cementum; the former often exhibits a thickened nodulated appearance, sometimes this takes place in such degree as to cause the absorption of the partition of bone between this and the next alveolus, a state of things that usually gives rise to considerable pain, which is often referred to the cheek or ear. Sometimes the membrane forms a small sac, which is filled with pus, but these conditions are generally met with in teeth where the crown has been almost or entirely lost. The changes in the cementum are necrosis and absorption, and the redeposition of cement and sometimes exostosis.

When the lower portion of the membrane is chiefly affected and the part corresponding to the margin of the gum remains more or less intact, the apex of the fang often becomes roughened by absorption and irregular redeposition of cementum. In some cases it becomes quite sharp from absorption; in others the new deposit is in excess, and we get true exostosis. In either case it is the cause of great irritation, and very often severe neuralgic pain. When the whole of the membrane is affected the change is still most marked at the apex of the fang, but very often the greater part or whole of the fang suffers.

In some cases the connection of the fang with the membrane is entirely lost, thus producing necrosis of the cementum; it is generally attended with absorption of the socket and wasting of the fang with consequent looseness of the tooth and pain on the latter being disturbed, owing to the pulp still retaining its vitality. When a tooth is in this condition and has lost the pulp as well, it is entirely necrosed, and is soon thrown off as an extraneous body, the process being attended with more or less inflammation of surrounding parts which greatly varies according to the implantation the tooth had, and the cause which produced its death. If through acute inflammation and the socket is not absorbed the symptoms will be severe; on the contrary a socket much absorbed and the pulp losing its vitality through atrophy will be the cause of much less disturbance. Teeth that have lost the vitality of their pulp are also said to be necrosed, which is true only in part, as they still retain the vitality of the cementum and the more external layer of dentine of the fang.

The causes of this condition are rather various, acute inflammation of pulp, atrophy, a blow on a tooth severing the nerves and nutrient vessels at apex of fang, the poison of fever, and it seems to occur idiopathically. It in a great measure it depends on the cause which produced the death of the pulp, whether the tooth is the cause of much pain or not. If from acute inflammation, there is great danger of the disease extending to the periosteum, &c.; but if from atrophy, or even a blow on a tooth, after the first symptoms have passed the tooth, may remain in the mouth for a very long period without giving rise to any very important symptoms, excepting those cases where the fluids of the mouth gain access to the pulp-cavity.

(*To be continued.*)

THE CAUSE OF DECAY OF THE TEETH.

In a paper read by Dr. S. B. Palmer before the New York Odontological Society (Dec. 21st, 1875) will be found the results of a series of experiments, having for their object the production of decay by artificial means in the form and manner in which it occurs in the mouth. The paper is too long to quote in full, but a good report of it will be found in the 'Cosmos' for May, 1876. There is one special point in this series of experiments which, but for a verification from a totally different standpoint, might be doubted by most operators; certainly it completely upsets the generally conceived notions with regard to the cause and prevention of decay, and, if correct, which I do not for a moment doubt, both our theory and practice must be altered. The conclusion come to by Dr. Palmer is, that he was unable to reproduce decay as it is seen in the mouth by the action of acids, but that he *did* reproduce it by alkalies. With the assistance of an electric current acids simply acted on and destroyed the whole of the enamel. Repeating the experiments with an alkaline solution, he states, "I obtained the characteristics of decay which are found in the mouth." As a curious and indirect verification of this (to many) unexpected result it will, perhaps, be remembered that some time ago I made a great number of comparative tests of solubility between oxychlorides and the enamel of freshly extracted teeth. In acids, both mineral and organic, the action was greater on the tooth enamel than it was on a good oxychloride, but when the same experiments were tried with alkalies the action was not only reversed but the comparative destruction of any and every oxychloride tested was tremendous. Now we come to the fact that in many cases every oxychloride fails in practice notwithstanding its great insolubility in acids, and we are driven to the conclusion both by this and Dr. Palmer's experiments to acknowledge that the destruction of teeth as it occurs in the mouth, and also the destruction of oxychlorides, is not caused as has generally been supposed by acids, but by an alkaline reaction. It is hard to have to go back and acknowledge our theories are completely the reverse of what they should be. At the same time, these two independent sets of experiments, both bearing on the same matter from two totally different standpoints, must, I think, cause a serious change in the theory and practice of conservative Dentistry.—Thomas Fletcher.

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

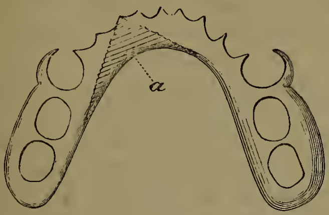
(*Continued from p.* 248.)

On Additions and Repairs.

When a vulcanite plate is broken in two it can often be well repaired. The first step towards this is to get the two pieces fixed together in their correct position. If the pieces are not quite separated, and we do not suspect that the fit has been spoiled, the crack should be sealed up with wax, and the piece placed in plaster in one half of a flask so that it makes a model of that part of the plate which fits the mouth. Should the plate be in two parts the crack is generally clean and affords sufficient indication for getting the true apposition. The pieces must be steadily held together whilst sealing wax is dropped over the lingual surface until it is of sufficient thickness to hold the two pieces rigidly whilst being put into plaster. But if the surface of the thickness of the plate in the crack is very small and plain, and we fear that it is not a sufficient guide in getting the right spread of the piece, instead of using sealing wax use a cement of wax and resin (Ash's sticks). This if laid on pretty thickly, say a third of an inch, will be sufficiently stiff under light handling. Place the piece in the mouth and by steady pressure bring it into its proper fit, then remove and place in plaster as before described. If there be a metal strengthener in the piece which has been bent when the vulcanite was broken it may be impossible to bend it into its right position again, the vulcanite preventing the metal from being bent enough to compensate for its own spring. This is sometimes rectified by cutting the vulcanite away on each side the crack before attempting to bend it right, trying it in the mouth before embedding it in the plaster. It is, however, generally better to separate the two pieces. Cut the strengthener out of one side first; it can readily be removed from the other by holding the detached end of the metal in the gas flame until it is hot enough to draw out. The two halves can then be proceeded with as before.

Supposing them in their right relative positions invested in plaster all but the lingual surface in the lower part of a flask. The crack must be cut completely out, the vulcanite sculpered away in a long incline towards it from two imaginary lines running parallel to the crack from a third to half an inch on each side (see Fig. 13). Although new vulcanite when cooked in contact with a clean rough surface of old, unites so intimately with it, that I am not sure it does not make the joint as strong as an unmended piece, still we should always give it every advantage. The new vulcanite is probably stronger than the old, as in the ordinary run of work every baking more or less deteriorates its toughness.

Fig. 13.



If the crack has occurred from strain in the mouth it will be best to file or sculper away nearly the whole of the lingual surface, leaving just sufficient of the old vulcanite to retain the fit. In such a case it is well to see first that the fit is good, as the accident sometimes happens in consequence of the teeth having nothing underneath to support the masticating pressure from the absorption of the supporting tissues. In this case a refit or a new piece must be made.

The fresh roughly cut surface of vulcanite is to be smeared with the chloroform solution of vulcanite and a sufficient quantity of warm rubber is to be solidly packed upon it; the flask can then be filled with plaster and is ready for cooking.

It has been objected that this plan of packing does not give such solid results as the ordinary method from an idea that the rubber is compressed when the flasks are screwed together. I believe this objection is founded on a misconception of what takes place. When two halves of a flask are pressed together, gates being cut for the escape of superfluous rubber no compression can take place. The rubber is pressed from one place to another; if any empty spaces have been left in packing these may be obliterated and the mass rendered homogeneous. Hence, in packing by the new method, we must take special care to pack solidly. The resulting rubber is then as strong and solid in every respect as if previously pressed.

One point must be insisted on. When old rubber is being joined to new the workman's hands must be clean. Before finishing roughing the surface of the old piece he should wrap the flask or model the work is on, all but the part he is working, in paper; he should then wash his hands and roughen the surface all over afresh with sculper and clean rough file, taking care that no smear of plaster is brought over any part by the tool. Having a perfectly clean virgin surface it is to be coated with the chloroform solution, after which a slight soil is of less consequence. If this point has been attended to, although there will be a difference in colour between the old and new, there will not be the slightest appearance of joint or weakness.

In adding isolated teeth to a vulcanite piece the impression should be taken as described in my last chapter for gold work with the piece in the mouth. The plaster model being poured with it in the impression, remove the piece from the plaster model, breaking or cutting the plaster away freely except just where the addition has to be made, rough file the vulcanite around the place where the added tooth is to go, and cut a dove tail if necessary, as in the ordinary method by wax. Having chosen and fitted the tooth clean file the vulcanite and apply the chloroform solution. Then pack rather too much fresh vulcanite to allow for some being squeezed out when putting the tooth in place. Press the tooth into the rubber, and if there is too much, remove some with a hot instrument until it will nearly go down. The pins of the tooth are either bent or have heads; in either case if pressed straight into the vulcanite it might not close around them sufficiently to give a secure hold; therefore take a very thin strip of rubber and wind it in a figure of eight around the pins before placing the tooth for the last time. When this is done the vulcanite round the pins will stick to the vulcanite in the gap, but you cannot force the tooth down properly as it will crawl back again. To overcome this difficulty the tooth must be heated by holding the model so that a point of the tooth just touches the blue part of the gas flame. When the tooth is quite hot take hold of it with a napkin and press it forcibly into its place. Whilst still holding it there press the vulcanite which has been displaced firmly towards it. It will not now rise again, and is ready to be flasked and cooked. No doubt this method of doing repairs was the stepping-stone to Mr. Williams' advance of packing an entire piece in that manner. I read a description of it in your Journal six or eight years ago when I had been in the habit of doing repairs so for two or three years, but I do not remember the name of the author of the paper.

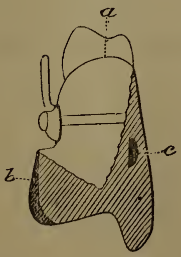
When a lower piece has to be raised and refitted if there are any natural front teeth standing this makes the bar behind these incommodiously thick. If there is a strengthener this cannot be reduced by filing. It is best, therefore, to cut the bar away altogether and use the back teeth again in block.

Mr. B. had been wearing a set consisting of a gold upper supported with springs by a vulcanite lower, which latter supplied the molars, second bicuspids, and central incisors. The ridge of the jaw had now receded so as to allow a space of nearly the eighth of an inch between the grinding surfaces of the upper and lower molars. He had also lost the lateral incisors.

A model and correct bite having been obtained in the ordinary manner it was determined from the great length of the remaining canines and bicuspids, and the depth of the space required to be filled to make up the bite, to pack the piece on the model, and use the side blocks again.

Although by this method of packing the difficulty of making an accurate fit to the model is overcome it is by no means as easy to arrange teeth correctly to the bite in vulcanite as wax. This is much more easily done when the teeth are already blocked than when they are separate. It is sometimes necessary to block them as a preliminary step, as I hope to describe in a future chapter. In the present case having the blocks containing the teeth fitted to the bite and the swivels ready to our hands it is a manifest advantage to use them. They will also prevent any tendency to

Fig. 14.



Section of new piece through the swivels. *a.* Old vulcanite carrying teeth and swivels. *b.* New vulcanite. *c.* Gold strengthener.

sponginess, which sometimes occurs in very thick pieces. The old gold strengthener was therefore taken out to be reused, a fresh fit was packed in new rubber in which the incisors were placed as previously described; but before putting up the side blocks they were reduced by filing away the lingual surface, and the labial surface below the swivels in two planes inclined towards the centre of the basal surface until they met, so as to give every facility for packing the fresh rubber, at the same time allowing the old to be nearly covered by it (see Fig. 14).

The old strengthener being packed in again and the piece completed it answered very well.

(*To be continued.*)

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM APRIL 1ST TO APRIL 30TH, 1876.

Extractions	Children under 14	341
	Adults	529
Under Nitrous Oxide		243
Gold Stoppings		150
White Foil ditto		26
Plastic ditto		238
Irregularities of the Teeth treated mechanically		22
Miscellaneous Cases		168
Advice Cases		125
Total		1842

JAMES MERSON,
Dental House-Surgeon.

British Journal of Dental Science.

LONDON, JUNE, 1876.

In perusing the report of the recent meeting of Dentists at Manchester, one cannot refrain from regretting that gentlemen who had apparently joined us with such unselfish zeal in a scheme for the reform of the Dental profession in the future, without regard to present personal considerations, should so soon have been tempted to swerve from their first magnanimous enterprise, and descend to the everyday cry "That it is high time that *we* ask for some consideration; and if *we* cannot get that consideration, then it is time *we* did something for ourselves." It is impossible not to feel a certain amount of sympathy for these gentlemen who have thus exposed themselves to being likened by Mr. Turner to the foolish virgins of old, but the sympathies of all would have been far more forcibly awakened for them had they persisted in the generous *rôle* they first appeared to have assumed. As it is, they have damped the energies of some of their best friends, and hindered, let us hope only for a time, an endeavour to obtain a yet further concession from the College of Surgeons on their behalf.

With regard to the meeting itself, it was fortunate for the interests of the profession at large in having in Mr. Harrison, of Sheffield, a gentleman to preside over it to whose discretion, impartiality, and kindly bearing, much of the happy result of the meeting was due.

It does not officially appear who were the promoters of the meeting. Dr. David Wormald, who holds the American D.D.S. diploma, was at the same time, according to his own statement, their secretary and the mover of the resolution, which was chiefly supported by Mr. Sydney Wormald, a member of the Executive Council of the Reform Committee, and another gentleman with an American diploma, Dr. Waite, who so persistently depreciates the value of the L.D.S., speaking of it from his limited knowledge as having been "a merely formal test," that it seems strange he should desire to extend its possession. The only other speaker in favour of the resolution, Mr. Hargreaves, had but little to say.

Considering that there was only one gentleman from London present, Mr. Turner, to whom the profession are much indebted for the straightforward plain-spoken fashion in which he dealt with the matter under consideration, the meeting may be looked upon as a thorough provincial reply, to an appeal from provincial men on the question; and as such it is eminently satisfactory, showing that the country at large is *not* prepared to endeavour to deal with the broad question of Dental Reform on narrow personal, or selfish grounds, but to adhere to the policy first started in this Journal, and consistently and steadily upheld by us, and well expressed in the last words of Mr. Shillinglaw, "What they really wanted was to stop anybody going into the profession without proper qualifications. First let them obtain the Act, and then other matters would be soon accomplished" (cheers).

We are willing to give Messrs. Wormald and Waite every credit they deserve for desiring to act for the best; at the same time we would earnestly entreat them, for the sake of that unity which even Dr. Waite himself reminded them was absolutely necessary before they could get Parliamentary legislation, to pause before coming to the conclusion that it is "time to do something for themselves." Let them take carefully to heart and act upon every word uttered by Mr. Margetson in his excellent speech on moving the amendment, seconded by Mr. Kyan; bearing in mind also, for their comfort, the words quoted of Mr. Underwood, "Whether the matter should extend further was to be seen as time rolled on," which seemed to show that the executive are not unmindful of possible future requirements. But if the time ever comes when our dissatisfied friends may think they are not getting that consideration from the Royal College of Surgeons of England to which they consider themselves entitled, let them, as we suggested in former years, rather turn their minds to those other medical corporate bodies in Scotland and Ireland, and seek through them to become allied to the great medical body on more liberal terms if they can get them, rather than by listening to the insidious whispers we have heard uttered, of a separate institution, sever themselves for ever from those whom as yet they may claim as their professional brethren.

It is with very great pleasure that we direct the attention of our readers to a paragraph in a subsequent page, announcing that a strenuous endeavour is being made to supply the beautiful City of Dublin with a Dental Hospital. We cannot but commend Mr. O'Duffy for the quiet modest way in which he has set about this undertaking, which may be fraught with much future good to the profession, and we trust that the scheme will be promptly taken up, and endorsed by those eminent Dental practitioners in Dublin whose skill and repute make us wish that they were more intimately associated with us in the cause of Dental Reform. We shall feel much pleasure in noticing the progressive steps of this new Dental Hospital, and our friends in the Sister Isle may rest assured that no jealousy for the interests of the English Dental Hospital in Leicester Square will mar our warm sympathy with that success which must await an undertaking so excellent in itself and so modestly originated.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Monthly Meeting, Monday, May 1st, 1876.

Charles Vasey, Esq., President, in the Chair.

The following gentlemen were proposed as candidates :—Mr. R. H. Woodhouse, London; Mr. J. E. Watson, Paris; Mr. Chas. Matthew, Edinburgh; Mr. M. Macgregor, Edinburgh; Mr. W. B. MacLeod, Edinburgh; Mr. Matthew Finlayson, Leith; Mr. A. Cormack, Edinburgh; Mr. J. Carteighe, jun., London.

The donations to the library were—'Quain's Anatomical Plates,' coloured, by Mr. E. Saunders; 'Handbok I. Farmakodynamik och Farmakologi,' by Dr. C. J. Meyer, presented by Mr. A. Thornyguist.

Mr. HUTCHINSON showed three instruments which he had found useful in difficult cases. One of them was especially adapted to the extraction of lower wisdom teeth which lay almost horizontal. The two other forceps were merely adaptations of well-known instruments.

The PRESIDENT showed a model of the mouth of a child four years and three months old, with a bicuspid on the upper side coming down through the gum. It was loose and causing a great deal of irritation. He therefore removed it, and found it was very little more than the crown. It was evidently an arrested development of the root.

Mr. TURNER showed a model of a case of dilaceration, the peculiarity being that the anterior wall of the very wide pulp cavity had been ruptured, and the root bent backwards, projecting beyond the gum. The enamel had been torn through as well as part of the bone of the tooth. The posterior aspect showed the pulp cavity with the withered pulp in it. From the front, however, the cavity could not be seen into, as there was an obvious occlusion. It seemed as if nature had been endeavouring to repair the accident by building up a new anterior wall to the cavity.

Mr. SEWILL showed a case of an impacted wisdom tooth. The wisdom tooth was coming through horizontally from the ramus, and impinging against the posterior surface of the second molar. It was evident that one or both of the teeth were extensively carious, and the pulp was exposed. It was impossible to remove the wisdom tooth without the second molar, and in trying to extract the latter the two came out together. A large cavity was then visible in the posterior surface of the second molar, into which the crown of the wisdom tooth had gradually grown until it was very nearly in contact with the exposed pulp of the second molar. The patient had been treated for neuralgia for a considerable period.

Mr. MEDWIN said, some time ago a child was brought to him in the Hospital, with a portion of the outer plate of the process of the lower jaw fractured, and the pieces being removed from time to time, the deciduous teeth were also removed. Ultimately the crown of the permanent tooth appeared through and also had to be removed, minus the fangs, in the same way as the bicuspid which the President had described.

The PRESIDENT said on one occasion he knew of two cases of fracture of the lower jaw in the Hospital at the same time. The patients were both children, one being eight years of age, and the other five.

Mr. RANGER mentioned a case of fracture of the lower jaw in a little girl only three years of age. The fracture was the result of an accident, the child having been run over by a cart.

Mr. TURNER said, not long ago in the Middlesex Hospital he saw a case of fracture of the lower jaw, caused by the child falling out of a second-floor window. The whole of the anterior portion of the alveolar arch was knocked backwards and inwards into the mouth. He brought the lacerated portions into position as well as he could, and the case went on very well. The upper incisors and one lateral were cut very nicely afterwards. The fracture was very long in healing, but remembering a case which Mr. Vasey had mentioned of retarded union caused by the presence of the crown of a permanent tooth between the surfaces of the fracture, he probed through a sinus which had been established just under the base of the jaw, in a line which would have been occupied by the permanent canine, and in the course of a little time he was enabled to remove the crown of a permanent canine tooth. Afterwards the case healed rapidly.

Mr. MOON mentioned a case which had been successfully treated with Hammond's wire splints.

The PRESIDENT said he met nearly all his difficult cases with the elevator. He remembered a man being brought to St. George's Hospital, almost passing away from suffocation, with a very extensive swelling about the neck. He was like a child with croup. The surgeon had performed tracheotomy to give him relief. With his little finger he (the President) felt a number of roots along the lower jaw on one side, and it would have puzzled him to know what forceps to use in such a case, but with the little elevator he picked one out after another very successfully.

Mr. TURNER said, however skilful a gentleman might be with the elevator there were cases where Mr. Hutchinson's excising forceps would be found extremely useful; for instance, in the removal of upper molar roots when the crown was gone and the three roots were united.

Mr. ASHLEY BARRETT then read a paper on "Antiseptic Dental Surgery," of which the following is an abstract.

Prof. Lister's method of treating surgical cases, entitled "Antiseptic Surgery," may be thus briefly described:—The wound, whether caused by accident or the surgeon's knife, was cleansed with water and was then coated with a mixture of carbolic acid and oil. This antiseptic dressing was renewed from time to time till the healing process was completed. It was asserted that wounds so treated healed, as a rule, by the first intention, and generally without suppuration, by the use of the carbolic acid; which, according to the theory, destroyed those atmospheric germs which, when in contact with the wounded surface, had they remained in a state of vitality, would have caused suppuration and destruction of tissue.

The plan which for the last few years I have adopted, with such success that I shall be glad to know it is more widely practised, is thus: after the application of caustic, what remains of the dead nerve (left not longer than two or three days lest it putrefy) is cleared out of the tooth with a barbed instrument. In this condition the devitalised pulp, which for not more than three or four days has been under the influence of arsenic, gives forth no odour, and is quite free from putrefactive change. Now let the pulp-cavity and the interior of the fangs be filled with wool dipped in carbolic acid, over this may be placed the permanent metal filling. Thus we hold the organic particles left inside the tooth, the remains of the dental pulp, *in statu quo ante*; for although dead, what remains of the nerve is not putrescent.

If the use of arsenic be not followed by that of carbolic acid, I think there is great probability that the particles of nerve remaining shut up within the tooth will putrefy and cause further mischief.

But yet another condition exists in which good results from the use of carbolic acid. I refer to those cases in which periodontitis of a chronic character has existed. In all cases of periodontitis we have one state which is constant, that is, the locking-up within the tooth of putrid nerve. And I think a great step is made in Dental pathology, now that we are able to assert with confidence that, whenever any of the signs of inflammation outside the tooth are present, they are caused by putrefaction going on within; that a tooth is never tender on pressure or tapping without containing a putrefied pulp; and that the gum-boil is evidence of chronic periodontitis, which latter is caused by escape from the tooth of particles of decomposed nerve; the death of the latter having resulted from antecedent caries.

This, then, being the pathology of periodontitis, whenever we find it existing, we can, it appears to me, relieve it only in two ways. Firstly and foremost, by making an opening through the walls of the pulp-cavity, so that the products of decomposition may escape into the mouth, instead of into the socket through the fangs. Secondly, by mopping out the interior of the tooth with carbolic acid, and thus again with this useful agent we may effect good; but, as a rule, a tooth requires three or six months of treatment with carbolic acid, and temporary plugs of wool, ere a permanent filling can be inserted. In fact, a channel for the escape into the mouth of putrid emanations should be kept open until they cease to be evolved.

Mr. Wood said he could not agree with Mr. Barrett that there never was tenderness of the tooth on pressure without the presence of putrefaction. He thought there was such a thing as sympathetic tenderness accompanying inflammation of the pulp. When the pulp has lost its vitality the tenderness would pass away, and under the antiseptic treatment would not return.

Mr. Henry said there could be no question that carbolic acid was perhaps the most valuable agent ever introduced to the notice of the Dental profession. He also demurred to Mr. Barrett's statement that a tooth was never tender without putrefaction of the nerve, for he had himself recently had to lose a large double tooth, which was exquisitively sensitive to the touch, but which, on being split afterwards, showed no putrefaction of the nerve.

Mr. Field thought if the antiseptic treatment were thoroughly carried out very few cases would require so long a time as Mr. Barrett had spoken of. Where there was a fistulous opening, and the antiseptic could have free passage through the canals, it might be safely filled the same day. There were, however, cases where all the antiseptics possible might be applied, and all possible operations performed, and yet the treatment would prove a failure. Carbolic acid needed no supporters; every day's experience proved its value. There were, however, cases in which salicilic acid might be used, especially in obstinate cases, where, after thoroughly cleansing the roots with a solution of salicilic acid and ether or glycerine applied upon cotton and carried well up, the tooth might be plugged temporarily. In many cases the cotton might be safely left for many months, and would work its own cure.

Mr. Underwood said he had known cases of alveolar abscess where creosote had acted as a perfect charm. If they could get into free communication with the sac, and wash it well out, they might then plug with very satisfactory results. He had tried it on several occasions where there was a sinus. He had pumped out the canal cavity, and washed out the sac until the creosote actually exuded from the opening, and had then and there plugged the tooth.

Mr. Dennant thought that failures with the antiseptic treatment arose chiefly from two causes. Anæmic patients often gave a great deal of trouble, and all the care bestowed upon them was utterly wasted; while other failures were caused by want of courage on the part of the practitioner in thoroughly opening up the pulp-cavity.

Dr. Field thought more time than courage was required.

Mr. Stocken said he recently had a case where the central incisor was discoloured and tender to the touch. There was a fistulous opening corresponding with the apex of the fang. He drilled through the tooth and made a thoroughly large opening, and found that the pulp was in a state of decomposition and very fluid. He removed the whole of it, passing a brooch through the apex of the fang; then he thoroughly syringed it with pure carbolic acid, and dressed it. After a time the fistulous opening closed; he gave it another dressing and syringing. The patient returned in a week and the tenderness was all gone; he then plugged the tooth, and the patient had had no inconvenience since. In another case of caries of the central incisor the patient had been suffering between one and two years with what she termed constant gumboils. There was a fistulous opening, which he treated in the same way, and though that was four months ago there had been no tenderness or pain since. In both cases he used carbolic acid only. He had lately used the tincture of calcium in neuralgic cases where pains had been felt after stopping. He used it in doses of fifteen minims, and it gave extraordinary relief.

Mr. Sewill said he could hardly agree with Mr. Barrett that inflammation of the periosteum was invariably due to septic poisoning arising from the formation of the gases which result from decomposition of the dental pulp, for there were undoubtedly cases where inflammation extended from the continuity of structure from the pulp to the dental periosteum. He wished to know on what theoretical grounds Mr. Barrett based his use of cotton-wool and carbolic acid as a permanent filling. Carbolic acid, no doubt, prevented putrefaction, but it did not prevent it longer than it remained in the structure, and when it disappeared the roots would not be much better off than if they had been left empty.

Mr. Coleman thought the expression "antiseptic treatment" ought to be more carefully confined than it usually was to the treatment which Professor Lister, of Edinburgh, introduced. The object of that treatment was to bring an unhealty and suppurating surface into a healthy and healing state. If a tooth was taken from which the bulk of the contents of the pulp-cavity had suppurated away and a section was made, even the dentine itself would be found to be more or less saturated with putrid fluids. In such cases the most powerful antiseptic must be used, such as carbolic acid, salicilic acid, or arsenious acid.

Mr. Moon mentioned a case of a large cavity in the first molar on the distal surface. He was persuaded that the whole of the dental pulp was entirely obliterated; he treated it with carbolic acid, and filled the tooth. About a fortnight or three weeks after the patient returned and was suffering severely, so much so that she insisted on having the tooth extracted. After removing the tooth he found that periodontitis had set up in the fang, and suppuration would shortly have taken place. On splitting open the tooth and examining the cavity which had been filled, he found that his supposition was correct, that the dental pulp had been obliterated, and even the dentine itself was in a state of putrefaction.

Mr. Moon recommended the application of a hot instrument to a tooth when it was required to ascertain if the pulp had lost its vitality, and there was no tenderness on pressure or discolouration.

Mr. Coleman said it sometimes happened that a tooth of which the pulp had been destroyed was more sensitive to heat and cold than any of the adjoining teeth.

Mr. Barrett, in reply, said he advanced his views with regard to the pathology of periodontitis with diffidence as his opportunities of studying the subject had not been very extensive. He thought, however, that in 90 per cent. of the cases inflammation outside a tooth was due to putrefaction within and the escape of putrefactive particles from the extremity of the fang. Inflammation outside a tooth could be remedied by boring a hole into the pulp cavity, and he gathered from that that the gas escaped into the mouth and no longer forced putrefactive particles from the tooth. As to the time required for the treatment of periodontitis in young teeth, such as six-year old molars, the pulp was large, and a large mass of putrefied material was locked up in the cavity. Such cases required a longer time for their treatment than when the patient was fifty or sixty years old and the pulp and the opening at the extremity of the fangs were very small. He was unacquainted with salicilic acid, but arsenious acid, no doubt, was a powerful antiseptic, though he preferred carbolic acid as it would penetrate more readily into the fangs. He could not understand how dentine could become putrefied, composed as it was of earthy salts and an organic matrix. His object in leaving the carbolic acid and wool in the tooth was thoroughly to carbolise the interior of the fangs, and he thought the permanent stopping over it would prevent it losing its power for a great many years.

A vote of thanks was accorded to Mr. Barrett, to the contributors of casual communications, and to the donors to the library, and the proceedings then terminated.

MEETING OF DENTISTS AT MANCHESTER.

A Meeting of Dentists was held at the Clarence Hotel, Spring Gardens, Manchester, on Saturday evening, May 6th, for the purpose of considering a resolution in favour of throwing open the L.D.S. examination to all existing practitioners. There was a large attendance of practitioners from Manchester and surrounding districts, as well as representatives from London and Liverpool.

Dr. D. A. Wormald (Hon. Sec.) opened the proceedings by saying that he thought all present were aware of the purpose for which they had met that day. He might say, also, as Secretary for the time being in connection with the promotion of the meeting, that they were all aware the Dental Reform Committee had been formed; and it was thought by many of those in that district who were present at the previous meeting, and others with whom he had had correspondence, that the proper time had come for them to make a recommendation to the Dental Reform Committee. Consequently the resolution had been framed in the spirit in which they saw it on the circular, and they were called together that day to discuss and act on it immediately, as the Committee would meet soon to carry out the question of Dental reform. It was not necessary for him to say anything further at present, except that the business of the meeting would be proceeded with by the election of Chairman. Their friend, Mr. Hayman, of Bristol, would propose a Chairman.

Mr. Hayman: I have very much pleasure in proposing Mr. Harrison, of Sheffield, as Chairman.

This was seconded by Mr. Hopkinson, of Manchester, and carried with acclamation.

Mr. Harrison took the Chair amid applause. He said: Gentlemen, perhaps it would have been as well if some other gentleman had been nominated in my place, but that has not been done, and I now take this position at your will and pleasure. I shall ask you to speak pertinently to the point and not to wander from the subject of this resolution. I do not know who has arranged this resolution.

Dr. Wormald.—The promoters of the meeting.

The Chairman.—I will read the resolution:

> "That with a view to unite the Profession and facilitate the obtainment of Parliamentary recognition, upon the basis suggested at the Manchester Meeting, in August last, this Meeting respectfully recommends the Executive Committee to embody in their Scheme of Dental Reform, a reopening of the L.D.S. Examination to all existing Practitioners, without curriculum, and with a form of Examination modified according to the number of years Candidates may have been in practice."

That is the resolution, and before asking anybody to support it I may venture to say I have taken very great interest in this Reform movement. I noticed many years ago the position Mr. Fox took in London (cheers) in a paper he read before the Odontological Society, and I noticed also the support which he received. I take it, as the Executive Committee is now formed, it is our duty as Englishmen and gentlemen professing to wish to make our profession a respectable one, both for ourselves and the public (hear, hear), to support the Committee as far as we can. If the gentlemen who have propounded the resolution will speak to it we can then listen to any objections others may have to make.

Dr. Wormald said he had pleasure in moving the resolution which had just been read by the Chairman. He ought to have said first of all in connection with this matter that the letters which had been addressed to him and were received that morning at the Clarence Hotel were very numerous. They came from gentlemen holding the highest qualifications down to the humblest of their brethren, and only some eight or nine were not in favour of the movement. He, for one, was taking his part in this movement because he felt interested in all matters concerning Dental practice and Dental reform. In this matter he did not wish to say anything, and he was sure no gentleman present desired to do anything which was likely to be schismatic or opposed to the good feeling, the harmony, and general good of the whole profession (hear, hear). Although the Dental Reform Committee had been formed for the purpose, and had as its corner stone the compulsory registration and education of all Dentists, yet that was not the whole of its labours; and he thought it competent for that committee to do whatever it could if it answered the purpose of Dental reform, and would help to raise the status of the profession. Looking at it in that light, he thought it was perfectly legitimate for a meeting like that to support a resolution such as had been read. It seemed to him that it would do a great deal for Dentists, educated and talented men, who had worked up a practice, and be an inducement for them to enter the college gates if they were properly opened for them. The L.D.S. licentiates of the country, in comparison to the number of Dentists, were a very small proportion; and if the corner stone of Dental reform was to be laid in compulsory registration and education, and if they would only adopt a scheme in a way that would be an inducement for the older and more respectable practitioners to come into the ranks, according to the number of years they had been in practice, his own impression was that this measure of liberality and justice would be such as to strengthen the ranks, and tend to make every man feel that his duty in the future was to give the best possible education to his children. He did think that men who had, by dint of hard work and perseverance, raised themselves in the respect of their fellow-men and the goodwill of the medical profession of the town in which they practised were worthy of some consideration in such a movement as that (hear, hear). To him it was only likely that all the respectable practitioners would try and pass, even if they had a modified examination according to the number of years they had been in practice. Those practitioners who were young in years like himself would, as a matter of course, be compelled to pass a more severe examination as a protection to those young men who now studied and had to pass their curriculum. He did consider that men outside the L.D.S. diploma had had anything but fair play shown to them in one matter, that of advertising. He knew this was a sore point, and one which tickled them very much. As a matter of course, there was no gentleman present, whatever might have been his practice in the past, but must feel that Dentistry must become allied with the medical profession in that respect. Every man should cease to conduct himself in anything but a professional manner. To do that, they must not advertise ; but the disqualification put against advertising by the London people was a prohibitory law against a vast number of really respectable men. He would tell them why. He knew it was impossible for many practitioners outside London to be guided exactly by the same rules as those in large cities. For this reason Dentists, and many of them good men, had to visit other towns than the one in which they resided. Although he did not agree with the principle of advertising at all, yet it seemed to him there was a vast difference between a practitioner who visits a town twenty miles away and says "Mr. So-and-so may be consulted professionally at a certain hour of a certain day," and the man who puts a whole column advertisement of patents, prices, and improved systems in the newspaper. The Dental Board puts both men on the same level, yet this board is supposed to deal out even-handed justice, and when an individual gets his diploma he was allowed to do this either to a large or small extent without let or hindrance. He did not consider that either fair or just. It seemed to him preposterous in the extreme, although he wished to speak as mildly as possible, that the Dental Board of Examiners should allow their own licentiates (and he had got an advertisement with him in proof of this in which Mr. So-and-so, licentiate, says he succeeds to his father's premises where he will conduct the practice, &c.), to do this and yet object to the man who merely puts his name in the paper the same as the man who has a whole sheet of advertisments. Every candidate should be willing to sign an obligation that if he advertised, his name should be struck off the L.D.S. list, and some principle should be adopted whereby licentiates could protect themselves, and that those who had diplomas should not be allowed to do that which other men were prevented from doing (hear, hear). He was afraid he was taking up too much of their time. He would merely add a few words in conclusion. There were several members of the executive of the Dental Reform Committee present; and although he had taken upon himself a responsible position (and he could assure them it was no light one during the past few weeks), in connection with that meeting, his only desire was that this resolution should be brought before them and talked over in perfect friendship with a view to benefit the profession generally. He had no wish that there should be anything to cause schism; he did not wish it to be looked at that there should be some men so high in the profession that they could not associate with the more lowly followers; but that even the humblest members of the profession should have the means of gaining a livelihood. He had no desire to cause disagreement in any way. He wanted the London men to lead them in this matter, and if they could see their way to support a resolution in the form proposed or even in a modified form to do so, and thus take in the great mass of men in the country at present outside the pale of the L.D.S. qualification. In a movement of this kind, when the Dental profession is on the threshold of a great future, they should be liberal and charitable to one another. If they could only bring in more and consolidate them it would tend to the good of the whole. For this reason he had a desire that the London men, who by association and numbers, by their institutions and their wealth, and all other advantages they could make use of, should see it to be to their own interest to do whatever they could to enlarge and widen their sympathy, and this would have a tendency to make the profession work together more harmoniously in the future. He was satisfied that when the time came, whatever differences of opinion they might have, they would be perfectly willing to give up their crotchets and go in for the common good. If they agreed to do this the profession would rise from the degradation some thought it to be in now to a higher pinnacle, and it would enable a greater number of clever and talented men in the future to come into their ranks, all working to raise and dignify a noble calling (loud cheers).

Dr. Waite (of Liverpool) said he must ask them to bear with him that evening, as he was by no means in speaking trim. He would like, in the first instance, to endorse everything said by his good friend Dr. Wormald in relation to the desire of those promoting the resolution to work on perfectly good terms and friendship with all representatives of the profession. It seemed to him the resolution was one which ought to excite the sympathy and receive the support of every one who desired the advancement of the profession. It would be a waste of time to attempt to show the need there was for uniting the profession in one compact body. They had been considerably disunited in the past, and considerably disunited in the present, and they would remain disunited unless the causes of the disunion were entirely removed. And it appeared to him that foremost amongst these causes stands the fact that a large proportion of practitioners have hitherto been excluded from the only Dental qualification the country offered. In treating a disease one half the difficulty lies in diagnosing its true cause. That resolution would serve the committee with a true diagnosis of their patient's case, and he trusted they would take ample and prompt measures in treating the same (hear, hear, and laughter). Union was not all they wanted. They had called a representative body into existence for a given purpose, and that purpose could only ultimately be accomplished by an Act of Parliament. It seemed to him that at the outset of their proceedings the committee would do well to lay their scheme and arrange their plans, so that when they go to Parliament they might go with one distinct object in view, having one solid front to present, and one strong united voice with which to urge it on the attention of the Government. For of all sure things in this world, nothing is more certain than that if there is division or disunion or disaffection in their ranks, Parliament would not legislate till that disunion was removed. It was therefore to unite the profession in order to facilitate the obtainment of Parliamentary recognition that they proposed the resolution to the committee. Now he had thus briefly referred to the preamble, he would ask them to allow him to say a word or two on the resolution proper. They would observe that it was put in the form of a recommendation. He should very much deplore any misunderstanding on that point either amongst themselves or on the part of the committee. Let it be understood they had no desire to dictate, still less to seek to coerce or menace the committee in any way. On the contrary, they wished to work with them for the good of the whole body, believing that such co-operation would most benefit the common end. They asked for a reopening of the L.D.S. examination to all existing practitioners. He presumed it was meant all practitioners who would consent to conduct their practice in the future according to the laws laid down by the Odontological and Odonto-Chirurgical Societies. Nominally that was done between 1859 and 1863, and again in July, 1874; but practically the examination has never been open to the whole profession, and this in his view was what had created a feeling of dissatisfaction and a sense of injustice in the minds of many of their brethren. He could say a good deal on this topic, but he saw around him some whose experience furnished confirmation of what he had stated. Again, as to the terms on which they asked for a reopening of the examinations. They did not want anything unreasonable. They asked for no favour. What they sought was simply to put right what was felt to be wrong, a re-doing now of that which was imperfectly done before. The principle for which they now contended had already been conceded in theory by the so-called reopening in July, 1874. All that was wanted now was only a liberal and practical application of that principle. Their recommendation was that all now practising dentistry should have the opportunity, if they wished, to obtain the Dental diploma. In order to this two things were necessary, first, that they should not be required to go through the curriculum; and secondly, that there should be only a modified examination. The plan most in favour with those with whom he had conversed was this: those in practice before 1859, and those who commenced before 1863 should be expected to pass such an examination as was required of the gentlemen who during those four years obtained the diploma, viz., a merely formal test; that those who commenced practice soon after 1863 should have a more stringent examination; and that the character of the examination should increase in severity according as the candidate had more recently commenced practice, till in the case of a gentleman who had commenced in 1874, the same questions should be put as to the students per curriculum. He would suggest that the examinations for existing practitioners should always be of a *purely practical nature.* If he had rightly interpreted the genius of the resolution, he thought it was as fair a proposal as could be made. So much for the resolution. He had already stated that there was a large number of respectable practitioners excluded from getting the diploma. That statement he knew was likely to be disputed in certain quarters. But he wished to show them that it is true. Between 1859 and 1863 a number of practitioners were refused examination on account of having at some previous time advertised. Discouraged thus, many gave up all thoughts of a diploma, and took no pains to study or prepare for any future opportunity. But since 1874 they have reopened the gates, as it is called; and he begged them to observe the conditions on which it was done. As he understood it, the only candidates eligible for examination without curriculum were those very gentlemen who were in practice before 1859, and they were required to pass precisely the same examination as that set before students fresh from their studies. It seemed, therefore, to him a misnomer to call this a reopening of the gates; it amounted to nothing short of the permanent exclusion of a number of skilful and well-established practitioners. He would put it to them whether it was reasonable to expect a man, eighteen years in practice, to pass the same examination as a student with all the splendid opportunities of acquiring knowledge afforded in the present day? (Cheers.) Would the gentlemen who obtained the diploma between 1859 and 1863 like to stand the examination of to-day? He submitted that the recent reopening does not meet the necessities of the case, and, therefore, he asked them to support the resolution which recommends the Executive Committee "to embody in their scheme of Dental reform a reopening of the L.D.S. examination to all existing practitioners, without curriculum, and with a form of examination modified according to the number of years candidates may have been in practice." In conclusion, he would like to anticipate one or two objections which may be urged against the proposition. First, they might be asked to name a precedent. That could be done, and from a quarter which their London friends would scarcely like to object to. The Royal College of Physicians was originally a very close body; its membership was guarded with very great jealousy. In 1859 it was agreed that for one year any physician practising as such in the United Kingdom should be admitted as a member on furnishing certificates of character and practice, *without any examination* at all. He had been told that since that date the College had abundantly prospered. One might also quote the Apothecaries' Act of 1815, which provided for the full recognition of all existing practitioners. The College of Physicians at Edinburgh had also a modified examination of existing practitioners. Another objection was hinted at under the name of injustice to the present holders of the diploma. He might repeat the remark he made at the outset that he had no feeling of displeasure to those who held the diploma, but when they discussed a question of that sort one had to speak in general terms. In Great Britain there were over 2000 persons practising Dentistry; from these, 500 might be subtracted on account of combining other pursuits with that of Dentistry and using quack announcements. That left 1500 Dentists. Out of these, 240 obtained the diploma between 1859 and 1863 upon notoriously easy terms, and have enjoyed almost a monopoly of it for the past fifteen or sixteen years. Let him ask them whether the remaining 1260 practitioners, who were practically excluded by the terms imposed, had not a far stronger cause of complaint than the 240 could pretend to? (hear, hear, and cheers). There could be no injustice to those gentlemen by admitting their compeers on the same terms as themselves. That was all they asked for. A still further objection had been put forth on behalf of those who, at the expense of considerable time, money, and labour, had passed through the curriculum, and honorably earned the diploma. But they must be good enough to consider that 1260 were excluded, and that from 1863 up till the time the last list was issued only about 110 students had passed the examination. He admitted that at first sight it did seem hard that others should be raised to the position that those 110 had worked for; but no reform could be carried out without treading on somebody's corns, and their desire was to inflict the smallest evil on the smallest number of people. On this principle he contended that for ever to exclude 1260 practitioners was a monstrously greater injustice than would be inflicted on the 110 by a liberal reopening of the gates. The vastly higher position to which the diploma would be exalted before the public, if it were made the distinctive qualification of every respectable Dentist, would speedily compensate for any imaginary depreciation. They appealed to the Executive to adopt at once an enlightened and liberal policy of Dental reform. They did this believing that where apparently diverse interests were involved *the greatest good to the greatest number* was the only safe rule of action. They did this believing that the interests of the public no less than of the profession would be largely promoted by a clearer definition between respectable practitioners and quacks. They did this believing that disunion would be banished from amongst them, and that they would be drawn into closer fellowship in the provinces and in large cities; and believing that the Dental diploma which at present was far too much like the old membership of the College of Physicians would be elevated to a broader platform before the public, and so its value would be augmented, and that thus, ere long, the title of L.D.S. would become the recognised qualification of every legitimate Dentist. There was before the committee a golden opportunity. In Dental politics, no less than in the affairs of men, there is a tide which taken at the flood leads on to fortune. He laid claim to no unusual sagacity, but he doubted very much if an occasion would arise more favorable than the present for carrying into effect the spirit of the resolution he had the honour to second (applause).

Mr. **Hargreaves** supported the resolution. He remembered writing to the College about the L.D.S. and could get no answer at all, although he was in practice before 1859. He always thought it a grievance that Dentists in full practice for twenty years had never had the pleasure and honour of having the L.D.S. He could not understand how an institution could be formed by a few for the exclusion of the many.

Mr. W. **Margetson** (of Dewsbury) craved their indulgence whilst he said a few words on the subject. After the eloquent speeches they had just heard, he rose with great hesitation to endeavour to point out what he thought was another light in which they ought to view this important question. It will be well remembered that at the meeting held there in August last the first and principal resolution proposed by his friend Mr. Dennant, and seconded by Dr. David Wormald, was in these words:—"That it is desirable that a committee be formed to see what steps can be taken to arrest the continual influx into the profession of illegitimate practitioners by the adoption of the principles of registration and compulsory education." At the meeting in London last March, when the executive committee was formed—drafted out of the general committee—this resolution was put prominently before the meeting, and the feeling on the part of those present seemed to be that this was the great object to be kept in view. To quote the words of Mr. Underwood,—"it was thought that the committee should decide what steps to take to effect this object; whether the matter should extend further was to be seen as time rolled on; but the real object of the committee was to take that subject and that alone into consideration." If they would look at a list of the executive committee he thought they would all agree that it was a representative one. In it were fellows of the Royal Society, fellows and members of the Royal College of Surgeons, licentiates of Dental Surgery, doctors of medicine, doctors of Dental surgery, members of the Odontological Society; and also gentlemen, most respectable, worthy, and influential practitioners, who were not connected with any Dental or medical institution. They might call this a truly representative body, every member of which was fully alive to the importance of the work, and wishful to do his utmost for every class of his professional brethren (hear, hear). His object in rising was to earnestly entreat them not to do anything that day that might by any possibility add to their difficulties. The committee had a great work before them, and it would be most unfortunate if by any act of theirs they were to show any want of confidence in them; rather let them be left in their first deliberations undisturbed by any suggestion from without. Depend upon it, Dental reform is a very comprehensive term, and if they worked quietly and carefully, doing one thing at a time and doing it well, they would ultimately accomplish much more than they were likely to do by attempting too much at once. Let them remember the words of their good and constant friend Mr. Fox, a true friend of Dental reform (hear, hear), and who had been earnestly working for that object since 1870. He says, speaking of the provincial practitioners, "They have commenced the work handsomely, let them proceed with it generously; we do not mean in pocket, but in a generous and forbearing spirit; we need and we claim the aid, not only of activity, but of patience and reliance." With these few remarks he begged to move as an amendment—

> "That it is not desirable or expedient to embarrass the Executive Council of the Dental Reform Committee with any suggestions at their first meeting, or until they have had time fully to discuss the subject in all its bearings."

Mr. TURNER (of London) suggested the word "discuss" instead of "study," and Mr. Margetson adopted the correction.

Mr. KYAN, in seconding the amendment, said he considered it premature to make any suggestions at present. As one of the Executive Committee he had no doubt that they would be very happy to take into consideration the opinions of their friends when the proper time arrived.

Mr. TURNER, who was received with applause, said he rose with a considerable amount of diffidence and some degree of responsibility to make a few remarks on the resolution before the meeting, and also to advert to the amendment. In the first instance he ought to state that he had come there purposely to hear what could be said in reference to that resolution and to meet his brother practitioners. He had not come in any way officially. The task was entirely an individual one. He had been wandering about Manchester during the day, and had purposely avoided meeting his brother practitioners or calling upon them. He had met with one driving in his carriage to that meeting, and about five minutes' walk from the hotel. He got in the carriage, and that was the first professional gentleman he had spoken to in Manchester. Consequently he came there perfectly unbiassed and anxiously willing to hear all that could be said in reference to the resolution. There was one little matter he should like to point out in the preamble of the resolution, that is, that the expression "Parliamentary Protection" is used. Now, he made bold to state that it was utterly opposed to the spirit of English legislation to protect any body of men. All legislation was for the protection of the public (hear, hear) and not for any body of men. They might educate as they liked or take what curriculum they liked, but they would never get the protection of Parliament. If they would look at the preamble of the Pharmaceutical or the Medical Act, they would find it was in order that the public might be able to distinguish between this man and the other man that these acts were passed, and not to protect this man or that. They all knew very well that medical men to-day were liable for any malpraxis. Therefore he begged of them, in considering the work the executive council had before them in managing anything on behalf of Dentists, to dismiss from their minds anything which had the slightest idea of Parliamentary protection. No Act of Parliament could prevent him going to the blacksmith, or the barber, or the chemist round the corner and having a tooth taken out; but an act of Parliament could give him or other men, under certain circumstances, a recognised legal position which would enable the public seeking their services to distinguish between a qualified and an unqualified man. But it would not protect the public from going to an unqualified man, and leaving the qualified man on one side (hear, hear). So that any idea of Parliamentary protection must be put out of the question. All they could get—and he spoke from his own individual view of the question—was legal recognition as Surgeon Dentists, or Dentists, or any other name they might assume with the consent of Parliament, so that the public would be able to distinguish between a man who had this position, and the man who offered his services without the position. If they took that view, he thought they would see that the action of the executive council in endeavouring to get such organisations, required no such resolution as this pressed upon them. Any recognition they could get from Parliament would of necessity recognise all Dental practitioners. They might strive with the College of Surgeons as long as they liked—for it was not with the executive council they were striving but with the College of Surgeons—to get the L.D.S. from them on cheaper terms. They would find it to be the old story, and he said it without any idea of hurting any one's feelings, but merely to show clearly the view taken in his own mind; they had all heard of it before—"Give us of your oil, for our lamps are gone out." It is the old, old story—one man takes advantage of his opportunities; another does not. There were plenty of opportunities for men in certain positions going up to the College of Surgeons before 1859. He had heard it said, the examination was at that time modified. How modified? Was it reduced to meet the capacities of men who came up to the College of Surgeons? Was there a man in that room who would accept such a diploma? He hoped not for the sake of the profession. All that was wanted to pass an examination was some knowledge which could be found within the boards of books; and the longer they had been in practice, the easier it was to pass the examination. There were technicalities which might pass away from the minds of older men, but they made up for it by more experience. As to going before the College of Surgeons to be examined according to age, he could tell them it was not according to memory, but according to experience they were examined. But even as to the question of memory, would any one present say he could not get up a small amount of technical knowledge in six months' time? He was sure there was no man who wanted a diploma, but could go up and get it. Don't let them damage themselves by seeking to pass a minor examination. What was the value of thus passing an examination? As he said before, it was the old story "Give us of your oil." They would lower the profession by seeking for such a thing, and lower any one following in their footsteps. He spoke in confidence when he said that few gentlemen who went to the College of Surgeons were sent back, for they were examined in practical matters and not in technicalities. He was very sorry indeed when the College of Surgeons threw open its doors again, that there should have arisen the difficulty about advertising. That professional crime of advertising had been the bugbear when they had endeavoured to band themselves together as one body. One man took one view, and another a different one. But he meant to say that as long as the word Dentist appeared in a newspaper they could not be looked up to as a profession. No one, he was sure, could take any objection when an announcement was required by the exigencies of provincial practice; but to use the name of Dentist was to use a name that did not belong to themselves, but to the whole medical profession. He had spoken his mind pretty freely with reference to the modified examination. It was all very well to talk about a modified examination, but how was the College to do it?

Were they to ask a man what questions he would like to have proposed to him? How were they to invent a sliding scale? He took it that the longer a man was in practice the more easily would he answer the questions put to him. The College of Surgeons was a difficult body to move, and they, the Dentists, in London had the greatest difficulty in getting the L.D.S. from them; but how far had they the power to alter the curriculum? It cost them £800 to get the Act of Parliament to give the L.D.S. under the conditions in which we had got it now, and he thought he might speak with safety in saying that they had not reimbursed themselves. A number of students had gone up and given ten guineas for their diploma; but the Examining Board must have their fees. The fees did not go to the College, but to the Examiners. A very little portion of ten guineas went to the College of Surgeons. These little difficulties had to be met when they spoke of that College. He was speaking now in confidence as a professional gentleman to professional gentlemen, and he should object to these remarks going abroad through the ordinary unprofessional press. But these were the difficulties to be encountered in London. They must not suppose there was any lethargy or want of desire to promote the welfare of the profession on the part of the men who had undertaken to do the work. But those who fought the battles knew the difficulties. He had not come to that meeting to beg of them either one thing or another. It was a matter of indifference to him how the resolution went. He had a duty to perform, and should work for the Executive Council as long as it existed. But he did not think, with all due regard to the energy and clear reasoning of the gentlemen who had spoken, that the resolution would do much good at present; because they had to tackle the College of Surgeons, and that is a body not easily to be moved. It is a strong and rich body, and one which values its diploma. It has a world-wide reputation, and it was not likely to let down the stringency of the examination when asked to do so. It reserves that to itself. He asked those present to place themselves in the position of the examiners and to say if a body of men asked for a modified examination whether they would say "Yes, we'll let you through easily." "No," they would say, "come and be examined;" and as he had said, of those who were examined few would fail. When the College gates were opened in 1859 one condition stated that they should not have advertised after a certain date. At the recent opening of the College it made the date some fifteen or sixteen years. That was very absurd, and it was an error which was detected too late; but he believed that error would be very soon remedied, and many men, whom he regretted ten thousand times over had been prevented taking the L.D.S., these men would be able to go up and take the L.D.S. But he did not think, because this had given dissatisfaction in the profession, that the Dental Reform Committee should be visited with the mistake by having a resolution imposed upon them at the onset before they had ever discussed the matter at all. They had called a meeting to the best of their judgment at the proper time for discussing the matter clearly; and it appeared to him the course at present was to get Parliamentary recognition, and that Parliamentary recognition must take in all men in practice, whether L.D.S. or any other S.S. belonging to them (laughter and cheers). They must all be taken in, and then it would be for the profession to rise. Whether it could be done or not was another matter; but they were much more likely to get something from Parliament than from the College of Surgeons. Now he had spoken confidentially on this matter. If he had wanted to make a speech for the public it would have been of a different nature; but meeting professional brethren in a room like that he could speak to them freely. He had hinted at the difficulties to be encountered, the impossibility of getting Parliamentary protection, and the almost impossibility to get, what it would be impolitic to get, the College of Surgeons to reduce nominally the stringency of the examination. He said nominally; for when elderly gentlemen sat at a table and elderly gentlemen came to be examined, they knew how to behave themselves. He did not think that any of them would like to go up if it came to the push under the sliding scale. There was nothing in the examination but what all could do in six months' time. In conclusion he might say he should not vote one way or the other, but as he saw there was a "honorary secretary pro tem.," he should like to know what that meant.

Mr. Shillinglaw (Birkenhead) said he was somewhat astonished to receive the invitation to attend that meeting, more especially on the subject of the resolution before the meeting. When he was there last August the meeting then formed a committee with the object of seeking legislation on behalf of the Dental profession. He then saw that there were many difficulties in the way, and those difficulties still stood before him. They as a body could not really and truly go to Parliament for an Act to protect themselves. As their friend Mr. Turner had already said, Parliament protects the public, but will protect no body of men in particular. The chemists some years back went to Parliament, endeavouring to obtain a legal status for their profession in the eyes of the world, but they failed to obtain it. They tried three times, and at last were enabled to get in the thin end of the wedge in the matter of the sale of poisons, by restricting the sales to those legally qualified, or those who had passed a certain examination. In passing that Act it was seen that there must be a qualified body of men for the sale of these poisons, and this resulted ultimately in the Pharmacy Act. The chemists and druggists have now a position, but it is owing entirely to the Poisons' Act. They (the Dentists) had not got a Poisons' Act. A blacksmith might take a tooth out with his pincers and draw the patient round his smithy; undoubtedly he was liable by the present Act of Parliament for injuries committed, but so were they also liable for injuries to their patients arising out of their practice. He did not think it likely that Parliament would extend to them any protection in this matter, or extend to them the protection, so to speak, which the surgeon enjoys. It is necessary to the public, in the matter of medical protection, to have some person legally qualified and who has passed an examination, so that they might rely upon them in the treatment of any diseases they might suffer from. He was hoping that in the future they might obtain some position, not that of protecting themselves, but to some extent a position whereby they could stand before the world and show that they held a qualification to do that which they professed to do. Those were the views which he held with respect to the resolution before the meeting. He wondered at first why it should not emanate from the Reform Committee, but then the thought crossed his mind that it was to strengthen the hands of that committee. Seeing, as Dr. Waite had stated, there are many Dentists now in practice who would seek the L.D.S. qualification he thought at first that it was the opinion of the Reform Committee that by opening the doors of the College it would strengthen their hands. But he did not think it would do so; for if they attempted to mend a cracked pot, and by so doing made another crack in it, he did not see that it would really mend the matter. What they really wanted was to stop anybody going into the profession without proper qualifications. First let them obtain the Act, and then other matters would be soon accomplished (cheers).

Dr. Wormald.—I had better say, in regard to the last remark of our friend, Mr. Turner, that I hope he will not be troubled with the Secretary. The duties of Secretary, pro tem., will finish with this meeting, and I shall not be sorry.

Mr. Sidney Wormald said: Before you put the resolution, Mr. Chairman, perhaps I may be allowed to say one word (cheers). Many of the gentlemen present, no doubt, know that I have taken an active part for some time in the Dental Reform movement, and as a member of the Executive Committee I have felt rather diffident at the idea of presenting myself at this meeting. But as there are other members here present who have taken the liberty of making a few remarks, perhaps I may venture to do the same (hear, here). I shall not enter into any remarks with regard to supporting or saying anything definite on the question, because it is a matter which will come before the Executive Committee. I can only say this, I shall give it my favorable consideration when that time comes, which is Monday week. I am very much obliged to Mr. Turner for coming down from London to the meeting, and for the remarks he has made. I am also obliged to Dr. Waite for his able speech. I quite endorse the sentiments and the facts he has uttered. It is a matter which really requires to be considered. Those gentlemen who possess the L.D.S., or the qualification that has been extended to them either by the curriculum or without, look at this matter in a very different light to those who do not possess it. There are very great difficulties in the way at the present time to those who do not possess the qualification. There are gentlemen in the room who have been as anxious, and have studied and read-up well, for that examination, and have done all they possibly could do, and offered themselves as candidates and been refused. And I say most unjustly (hear, hear). I am one of those. And I say that for all such as myself, who feel themselves qualified by years of respectable practice, which speaks for itself, it is high time that we ask for some consideration, and if we cannot get that consideration, then it is time we did something for ourselves (hear, hear). I am in favour of the resolution.

The Chairman.—Our friend Mr. Turner, the Secretary of the Executive Committee, has in his observations cautioned us in such a grave manner that I am sure it behoves us to be very careful what steps we take. I said in reply to Mr. Wormald's invitation to the meeting that I was not quite sure whether this was the right step to take at the present moment or not. Certainly it would have to come to the front, but I question in my own mind whether just now is the proper time. Dr. Waite has made an impressive speech on the subject, such as must have considerable weight even with Mr. Turner. I am quite sure our presence here is to support the executive; not to trammel them with any resolution, but simply to give them our cordial and energetic support. First of all, I take it, we want compulsory registration; and I have contributed to the expense incurred under the idea that first of all they were to have compulsory registration for the protection of the public. If that is accomplished, together with compulsory education, I take it that all these other matters will come as a matter of course (hear, hear). That being so I shall proceed to put the amendment before you.

Fourteen voted in favour of the amendment, and nine for the original resolution.

After some remarks on the possibility of forming a Dentists' club in Manchester, a vote of thanks was cordially given to the Chairman on the motion of Dr. Waite, seconded by Mr. Buckley, and responded to.

DENTAL HOSPITAL OF LONDON AND METROPOLITAN SCHOOL OF DENTAL SURGERY.

Opening of the Summer Session.

On the reassembling of the students after the spring recess the Dean, Mr. Thomas Arnold Rogers, met them in the lecture-room, and, reminding them of his wish to work with them as well as for them, said that, in pursuance of that wish he had called them together in order to explain the reasons for various changes lately made in the regulations of the school, which were made not at hap-hazard, but in pursuance of a general plan. They knew the first regulation, viz. that unless exempted for special reasons students entered with the understanding that they would obtain the Dental Diploma. This had hitherto been very leniently interpreted lest it should in any way bear hardly upon men who, from the comparatively short time during which the new institutions had been established, might have had limited opportunities of becoming acquainted with their existence and working. But sufficient time had now elapsed to allow all who took the proper trouble to know all about them before entering upon their studies, and it was therefore felt that this regulation should be more stringently applied, and also that those who complied with its requirements should enjoy greater privileges than those who, from whatever reason, might in future be exempted. In accordance with this, some of the prizes, and the senior extracting dresserships would henceforth only be open to gentlemen who had entered fully both here and at one of the general hospitals for the Dental Diploma. Possibly this might be extended to all the prizes at a future period. They knew also that on and after October, 1877, the preliminary examination would be necessary for Dental students as well as for full medical students, and he felt sure that future students would both be benefited by the higher mental training and discipline thus necessitated, and also would no longer suffer in any comparison on that point with the candidates for the full membership. He expressed himself strongly on the subject of the necessity for punctuality in attendance, more especially on the practice of the hospital, because patients and their employers were often subjected to very great inconvenience by the detention of the former, and also because habits of unpunctuality would be extremely injurious in their own future professional career. He also trusted that the junior dressers would take every opportunity of becoming skilful extractors during their dresserships, otherwise it would not be for the advautage of either the hospital or themselves that they should be placed on the senior list. They were aware that operations under anæsthetics required great skill and readiness, which ought to be gained by previous practice, otherwise the operator would be liable to be flurried and the patient would run undue risk of accident. He welcomed them all at the commencement of a new session, and strongly urged those who were soon about to proceed to their examination to work hard, and so acquit themselves as to do credit to themselves and their teachers, and to lay a solid foundation for their success in life.

Miscellanea.

THE 'LANCET' AND THE DENTAL PROFESSION.

The following article appeared in the 'Lancet' of May 27th, 1876:

Dental Anæsthetics and "Dental Surgeons."

Questions of the highest practical moment relating to the use of anæsthetics in Dentistry and to the practice of unqualified Dentists have been under discussion in our "Correspondence" columns. Dr. Burney Yeo, impressed by the condition of a patient who had been subjected to a prolonged Dental operation under "the gas," *i.e.*

nitrous oxide, proposed certain urgent queries. He inquired whether the presence of strongly marked "physical signs of both aortic and mitral disease," or of valvular obstructions generally, ought not to be regarded as contra-indicating the use of anæsthetics, and if nitrous oxide could be held to form an exception to the rule of caution? Mr. Hamilton Cartwright, Mr. Braine, and Dr. George Johnson have replied, the former pointing out, and the latter explaining with singular clearness, the fact and causation of great danger attending the administration of nitrous oxide, particularly in cases of pulmonary obstruction or weakness of the right muscular wall of the heart. The passage in Dr. Johnson's letter, in which he exposes the fallacy of inferring strength from increased fulness and tension of the pulse in the first stage of anæsthesia by nitrous oxide, is of great value and interest. Mr. Braine, as an "anæsthetist," does not attach so much importance to the risk attending the use of anæsthetics. Possibly familiarity with danger breeds contempt. We must confess to feeling more sympathy with the caution of Mr. Cartwright and Dr. George Johnson than with the courage of Mr. Braine. Meanwhile, all our correspondents are agreed in respect to one point, and it is for this we are anxious to bespeak general attention. Nothing short of ignorance of the danger they incur or recklessness can induce unqualified persons to administer anæsthetics of any description, or patients to subject themselves to such perilous because unskilled treatment. It should not be forgotten that a Dentist is unqualified, whatever his "experience" or manipulative ability may be, if he is not possessed of the knowledge requisite to diagnose or treat the symptoms of general disease. In a word, he is practically incompetent in all cases in which tooth symptoms are dependent upon, or have originated in, a morbid condition of the body as a whole, or of the teeth themselves as organs which suffer in sympathy with the general system. No mere manual dexterity can possibly make amends for the lack of medical knowledge. The non-surgical Dentist is, of course, wholly incompetent in a case requiring the use of an anæsthetic. He cannot know how to treat his patient; and so generally is this acknowledged that honest men call in the assistance of an expert to take medical charge of the case and administer the pain-relieving drug while they restrict themselves to performance of the operation. This is obviously a very disjointed and, as far as the public are concerned, most unsatisfactory mode of practice. A question may at any moment arise, either as to the extent of the manipulative process, the condition of the patient, or the administration of the anæsthetic, but no consultation is possible. The qualified surgeon cannot meet the unqualified Dentist on grounds of professional equality. Setting all questions of propriety apart, the one does not possess the knowledge necessary to give the basis of any consultation. We think the practical issue raised by this consideration is of vital moment. To speak frankly, we do not hold that qualified medical or surgical practitioners are justified in playing the part of "anæsthetists" to Dentists who are teeth extractors and teeth makers, but nothing more. Would qualified anæsthetists back up the practice of bone-setters or chiropodists? The one true remedy for the existing state of matters in respect to Dentistry is supplied by the "Association of Surgeons Practising Dental Surgery." The members of this Association are first surgeons and then Dentists. They are qualified to treat any case of tooth disease all through. They can trace effects to their causes, they can administer remedies for both root and branch of the malady, and, whatever occurs in the course of the case, they are armed with the knowledge necessary to deal with it; besides which—a point of great importance to the patient—they are in a position to call in and consult with any practitioner whose aid may be desirable. The public will consider their own interests in confiding their cases to such hands, and by so doing secure safety, which cannot be obtained at the hands of men who are "Dentists" and nothing more, even when backed up by the occasional assistance of professed "anæsthetists."

In consequence of the above article the following protest was forwarded to the Editor of the 'Lancet' for publication on June 3rd :

THE PROFESSION OF DENTAL SURGERY.

To the Editor of the 'Lancet.'

Sir,—We, the undersigned qualified surgeons engaged in the practice of Dental Surgery, beg to emphatically protest against the inference conveyed by your editorial article, entitled "Dental Anæsthetics and Dental Surgeons," in your issue of May 27th. In making the statement that "the one true remedy for the existing state of matters in respect to Dentistry is supplied by the "Association of Dental Surgeons practising Dental Surgery;" and further, that "the public will consider their own interests in confiding their cases to such hands, and by so doing secure safety," &c., the inference is conveyed that this new Association is a representative body, including within its ranks the larger and more influential section of fully qualified surgeons who are engaged in the practice of this specialty. Leaving out of present consideration the injustice done to the holders of the Dental licentiateship, and the many other important questions raised in the article, we beg to entirely disclaim the Association, to the formation of which we are opposed, and to emphatically deny its claims to in any way represent the body which it professes to represent—namely, the fully qualified surgeons engaged in the practice of Dental Surgery.

As it is believed that the number of fully qualified surgeons practising Dentistry in the United Kingdom does not greatly exceed fifty, the following twenty-five signatures, of London practitioners only, have been deemed sufficient. More might have been obtained, but at the cost of delaying the insertion of this disclaimer, which did not appear advisable.

Thomas Arnold Rogers, M.R.C.S., L.D.S.,
Examiner in Dental Surgery, Royal College of Surgeons; Dean to the Metropolitan School of Dental Surgery.

Edwin Saunders, F.R.C.S.,
Surgeon-Dentist to H.M. the Queen.

John Tomes, F.R.S., M.R.C.S., L.D.S.,
Consulting Surgeon-Dentist, Middlesex Hospital; Consulting Surgeon-Dentist to the Dental Hospital of London.

Charles Vasey, L.F.P.S., L.D.S.,
Dental Surgeon and Lecturer on Dental Surgery at St. George's Hospital.

Henry John Barrett, M.R.C.S., L.D.S.,
Examiner in Dental Surgery, Royal College of Surgeons; late Dental Surgeon, London Hospital; and Lecturer on Dental Surgery and Pathology, London Hospital Medical School.

Charles S. Tomes, M.A. Oxon., M.R.C.S., L.D.S.,
Lecturer on Anatomy and Physiology, Dental Hospital of London.

James Smith Turner, M.R.C.S., L.D.S.,
Dental Surgeon, Middlesex Hospital; Lecturer on Dental Mechanics, London School of Dental Surgery.

Henry E. Sewill, M.R.C.S., L.D.S.,
Dental Surgeon, West London Hospital.

Ashley Gibbings, M.R.C.S., L.D.S.,
Late House Surgeon, Dental Hospital, Leicester Square; and Dental Assistant, King's College Hospital.

Charles James Fox, M.R.C.S., L.D.S.,
Dental Surgeon to the Dental Hospital of London and Gt. Northern Hospital.

Frederick Canton, M.R.C.S., L.R.C.P. Lond., L.S.A., L.D.S.

Robert Hall Woodhouse, M.R.C.S., L.D.S.

Joseph Rogers, M.R.C.S., L.D.S.

G. A. Ibbetson, F.R.C.S., L.D.S.,
Dental Surgeon, University College Hospital; Lecturer on Principles and Practice of Dental Surgery, University College; late Member of Board of Examiners in Dental Surgery, Royal College of Surgeons, Lecturer on Anatomy and Physiology of the Teeth, London School of Dental Surgery, and Dental Surgeon, Dental Hospital of London.

Samuel J. Hutchinson, M.R.C.S., L.D.S.

Joseph Walker, M.D., M.R.C.S., L.D.S.,
Dental Surgeon and Lecturer on Anatomy and Diseases of the Teeth, Westminster Hospital; late Assistant Dental Surgeon, Dental Hospital of London.

A. G. Medwin, M.D., L.R.C.P. Lond., M.R.C.S., L.D.S., L.S.A.,
Assistant Dental Surgeon to the Dental Hospital of London; Dental Surgeon, Royal Kent Dispensary.

Ashley Barrett, M.B. Lond., M.R.C.S., L.D.S.,
Surgeon-Dentist, London Hospital, and London Orphan Asylum, Watford; Lecturer on Dental Surgery and Pathology, London Hospital Medical School; late Surgeon-Dentist, Metropolitan Free Hospital.

Henry Moon, M.R.C.S., L.D.S.,
Lecturer on Dental Surgery, Guy's Hospital; Assistant Dental Surgeon, Guy's Hospital, and Dental Hospital, London; late Surgeon-Dentist, Islington Dispensary.

John W. Elliott, M.R.C.S., L.D.S.,
Surgeon-Dentist, St. Thomas's Hospital.

William Giel Ranger, M.R.C.S.,
Assistant Dental Surgeon, St. Thomas's Hospital.

E. Holborow King, M.R.C.S., L.D.S.

Edward B. Randell, M.R.C.S., L.D.S.

Thomas F. Ken Underwood, M.R.C.S., L.D.S.

John Howard Mummery, M.R.C.S., L.D.S.

PRESENTATION TO THOMAS ARNOLD ROGERS, DEAN OF THE LONDON SCHOOL OF DENTAL SURGERY.

The services rendered by the Dean to the Dental Hospital and London School of Dental Surgery have been acknowledged by all connected with these bodies, but by none more thoroughly than the medical officers and lecturers who have been daily witnesses of his untiring devotion to the task he so kindly undertook.

Owing to the steady increase in the number of students and patients, it became at last imperative that some one should be placed at the head of affairs who was possessed, not only of requisite administrative ability, but also of a rare union of kindness, firmness, and tact. These qualities Mr. Rogers possesses in an eminent degree, and it is not exaggeration to say he has won the affectionate esteem of both teachers and students.

The medical officers and lecturers, anxious to testify in something more lasting than words their estimate of the Dean's services, invited him to dinner on Tuesday, the 9th of May, and afterwards presented him with a claret jug, salver, and goblets, with the following inscription :

"Thomas Arnold Rogers, Dean of the London School of Dental Surgery, from his Colleagues, 9th May, 1876."

A DENTAL HOSPITAL FOR DUBLIN.

We have much pleasure in inserting the following paragraph from the 'Dublin Evening Mail,' and wish the new undertaking every success.

On May 25th, 1876, a meeting of gentlemen, members of the Dental profession, was held in Morrisson's Hotel, for the purpose of taking steps for the establishment of a Dental Hospital in Dublin. The chair was occupied by William Booth Pearsall, Esq., F.R.C.S.I.

Mr. O'Duffy acted as secretary.

It was unanimously agreed to take the necessary measures to found the institution indicated, in which a Dentist should be in daily attendance. It was also stated that so eagerly was the idea taken up, that a sufficient number of the profession had intimated their willingness to form a staff which would be sufficient for the requirements of the institution, thus securing the services of an eminent Dentist every day, as in the London Dental Hospital. The secretary was requested to inquire into particulars regarding the site for the proposed hospital, and other matters connected with it, to be submitted at the next meeting.

On the motion of Henry W. Sherlock, Esq., L.R.C.S.I., a vote of thanks was passed to the chairman, and the meeting adjourned to that day week.

APPOINTMENT.

L. Bell, Esq., to be Assistant Dental House-Surgeon to the Dental Hospital of London.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The next examination for the Diploma in Dental Surgery will take place on Thursdays, 22nd and 29th of June.

At the last meeting of the council, Mr. Samuel J. A. Salter, M.B., F.R.S., was re-elected a member of the Board of Examiners in Dental Surgery.

The following were the papers set to the candidates at the examination for the Degree held on the 1st of February.

N.B.—The Candidate is required to answer at least two out of the three questions, both on Dental Anatomy and Physiology, and on Dental Surgery.

Dental Anatomy and Physiology.

5 to 8 o'clock, p.m.

1. Describe the mode in which the temporary teeth are shed; and mention the different theories advanced to explain the process.
2. What is meant by the term "Calcification?" State the peculiarities of this process as it occurs in the formation of primary dentine.
3. What is the chemical composition of Enamel? Describe its minuter structure and mode of development. Describe also the histological characters of the Enamel organ.

Dental Pathology and Surgery.

5 to 8 o'clock, p.m.

1. What injurious results to the teeth and contiguous structures may arise from the wearing of regulating plates and artificial teeth? How would you avoid or remedy such results.
2. Name the Salivary glands. State the constituents of normal and abnormal salvia, and how the latter may affect the teeth.
3. A child, ten and a half years of age, presents himself

with a general crowded state of the teeth. There is no such absolute deformity as to make immediate extraction unavoidable, but sufficient to render it almost certainly necessary at some time in the progress of the case. State what permanent teeth you would expect to find cut at the above age, and on what general rules you would proceed in the treatment of the case.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

To the Editor of the ' British Journal of Dental Science.'

SIR,—At the meeting held at Manchester on the 6th inst. a gentleman made the observation that the Pharmaceutical Society could not obtain the ear of Parliament until strong representations were made on the sale of poisons, then it was that there was sufficient reason shown for an act of incorporation of that body in the interest of the public.

Well, then, sir, in reflecting on that observation a circumstance occurred to my mind which I think is a strong reason why the Dentists should be favoured with an Act of incorporation.

Mr. C—, a respectable farmer, called upon me several years ago with reference to a gold piece which he desired to have remade. and which was arranged to be done by a certain date. The piece was mounted with flat teeth. To my surprise, when the teeth were taken off and the plate passed through the fire all the gold had disappeared, and nothing was left but a *brass !* plate. I wrote the gentleman a letter stating the fact, and that I could not go on with the piece, and told him he was at liberty to use the letter in any way he thought best. Well, sir, within a very short time I came across several other pieces made of *brass !* in the same way and made by the same party, the only difference being that the whole of the gilt was worn away; and I proved to the parties by the nitric acid test that they were wearing nothing but brass pieces, that in fact they were subjecting themselves to a process of *slow poisoning*. A repairer of jewelry frequently sold to the maker of these spurious pieces brass and German-silver brooch pins, to whom he made boasting remarks that his patients would know nothing about it.

It is all very well to say that the public have their remedy in such a case; they would have if there were any funds, but, unfortunately, in this case there were none, as he was hopelessly insolvent, so that to prosecute was worse than useless.

For very obvious reasons I cannot give names, *but* I can verify my statements. Well, then, my point is this, that if the Dentists had had a Charter of incorporation and a code of ethics which should regulate and enforce honorable practices, that then the public would be protected, and the party who was guilty of practices at once *fraudulent, degrading, immoral,* and *poisonous,* could at once be brought to book and struck off the list of persons entitled to practise as Dentists.

It is obviously apparent that in the present *disintegrated* state of the profession it is impossible to bring to bear effectively any restraining influence against improper and degrading practices such as are described above, and the only conclusion is when such things are brought to light the whole profession rests under a stigma, for the public don't stand over-nice in their conclusions.

If this letter should help in any way to advance the cause of Dental Reform then my purpose in writing it will be answered.

I am, &c.,
PRO BONO PUBLICO.

To the Editor of the 'British Journal of Dental Science.'

SIR,—It is impossible for a casual reader to peruse the report of the meeting at the Medical Society's rooms without being strongly impressed with the want of energy and the apparent depression which characterised the proceedings; indeed, the only prominent feature of the meeting seemed to be a desire on the part of most of the company to evade any responsibility which they might incur by accepting office from the hands of the meeting. To those who patiently awaiting the course of events and looking to their leaders, the heads of the profession, for the adoption of some spirited policy, this is very disheartening, and comes almost like the death-knell of the hope that "the influx into the profession, &c.," is to be without further delay summarily checked.

Can it be that the amount of money in hand (inadequate for the purpose I admit) had a depressing effect on those who probably have some idea of the cost of the campaign on which they are about to enter? I do not think that they need be too anxious on that score, as the promulgation of a well-defined policy would, I am convinced, be the signal for an unmistakable demonstration in aid of the funds by the more respectable portion of the profession.

There is, I suppose, no question but that an Act of Parliament will be required, and that any application to Parliament may meet with some little opposition. If there were the least chance of opposition emanating from the College of Surgeons or from any other branch of the medical profession, the matter might as well be abandoned at once; but if any of the above bodies, the College of Surgeons for choice, could only be induced to take the matter in hand, it might be considered an accomplished fact, and in any case their moral support must be of the greatest possible assistance. Failing this, it will be absolutely necessary to gain the sympathy and support of the public out of doors, and I can suggest no better plan of obtaining an Act of Parliament than by demonstrating how necessary for their protection, from unprincipled and unqualified Dentists, such a measure is.

There are in the ranks of the profession a number of men mostly of the advertizing class who have grown rich literally by cheating, and there are few Dentists, either in London or the provinces, who have not heard from their patients the details of some most unmitigated impositions practised upon them by men, who, unfortunately for us, have adopted the calling and title of Dentists. Specimens of this class we may be able some day to prevent entering the profession, but although we can never rid ourselves of those already in, we may be able to make them useful in carrying on the war against charlatanism.

Could not an energetic society soon attract public attention to the necessity of some kind of legislation, by taking up the case of persons who had been victimised by these men, and when an attractively atrocious case presented itself by carrying on a legal war on their behalf to the bitter end, taking care that the reports found their way at some cost or other into the public journals, thus turning the guns of the great army of quacks and impostors upon themselves, and carrying on the fight from the very heart of their camp.

It will be remembered by you, perhaps, that when a very disgraceful money-lending transaction some years ago drew attention to the iniquitous trade that was carried on under the guise of loan offices, how anxious, in answer to public demands, Parliament seemed to be to take the matter in hand. Transactions, upon a smaller scale I admit, but still as knavish as were ever brought to light, are practised every day by the advertising Dentists, and an hour's cross-examination of one of these by a quick-witted barrister would do more than an ocean of petitions, and a second or third repetition might even open the eyes of a member of Parliament or two, which would be better still; and such proceeding could do no harm to the respectable practitioner when it was well known that the cases were taken in hand by a society of Dentists for their own and the public protection. Of course, the greater the publicity, the greater the effect.

You, sir, will see that I for one have little faith in any policy save that of coercion, and any other means, I am convinced, will fail. Whilst relying upon public opinion, we must lose no time in registering and so qualifying those who are in, in order to disqualify those who are at present out, never forgetting that there are in the chrysalis state a large number of lads who will in a few years emerge as full-blown butterfly-Dentists, ex-polishers from Jewish workrooms, and *surgeon*-Dentists of the gutter.

I remain,
Your obedient servant,
URTICA.

To the Editor of the 'British Journal of Dental Science.'

SIR,—It is a pity that your virtuously indignant correspondent C. M. (whose letter appeared in your last) did not take the trouble to make some inquiry before writing as he did.

We have no censorship or publishing committee, but as Secretary it is my duty to collect the material for publication in the 'Transactions' of the Society (it being understood that it also appears in this Journal). Each speaker reported is solely responsible for his own contribution, which is printed from his own MS., and the proof-sheet of which he usually, if not invariably, corrects, receiving it from and returning it to you direct.

I am thus only responsible for the general business and the proper arrangement of the whole. I certainly would not be a party to any garbling or manipulation of a report.

As to that portion of our retiring President's remarks to which C. M. so strongly objects, there may be difference of opinion as to whether they should have come from the chair or read as an ordinary communication; but as to their being too coarse or broad for publication in a *professional* journal, that was a point for your consideration, and as I did not receive even the slightest hint of their being so I am justified in concluding that, in your opinion, they do not deserve the character given them by C. M. For my own part I fail to see their impropriety, and none of the members present showed any sign.

I am, &c.,
ANDREW WILSON,
21, Young Street, Edinburgh. *Hon. Sec.*

We are authorised to publish the following:

May 21*st*, 1876.

Dear Mr. Saunders,

Having accidentally read a letter in your Journal from G. T. Hare, of Limerick, as I am the lady referred to, I think it incumbent on me to say that the words quoted as mine in that letter were not spoken by me. The attack, therefore, made upon you entirely fails. I may add that, if it be the custom for "provincial Dentists" thus to drag their patients into print, it would, indeed, be far better for these patients to do without them and "bear it."

You are at liberty to make any use you like of this letter.

I remain,
Very sincerely yours,
LOUISA FITZGIBBON.

ERRATUM.—In May Number, page 261, line 3, *for* Marten Finlason *read* Matthew Finlayson, M.O.C.S.E.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.

ANSWERS TO CORRESPONDENTS.

"EMPIRIC."—We wish you would adopt some other signature. We desire more than ever to make your acquaintance after your last statement.

"M.R.C.S."—No. Mr. Christopher Heath has long ceased to be connected with the 'Lancet.'

C. W. DUNN.—Many thanks. Shall be inserted in our next.

"INQUIRER."—Yes. Professor J. J. Sylvester, M.A., F.R.S., the eminent mathematician, who lately proceeded to Baltimore, where he has accepted a professorship in the John Hopkins University, is a brother of Mr. G. J. Sylvester, of Worcester.

Communications have been received from Dr. David A. Wormald (Bury), "Pro Bono Publico," F. H. Balkwill (Plymouth), "Empiric," Felix Weiss (London), J. Ottley Atkinson (Kendal), William Carr (New York), Andrew Wilson (Edinburgh), Matthew Finlayson (Leith), Eimerk Showler, Henry Ashworth, Edwin Saunders (London), "Urtica," James Merson (London), Thomas Fletcher (Warrington), Alfred Coleman (London), Henry Sewill (London), Thomas Underwood (London), Charles Tomes (London), C. W. Dunn.

BOOKS RECEIVED.

'Eighteenth Report of the Dental Hospital of London, Leicester Square.'
'Third Report of the Medical Microscopical Society, and List of Members.'
'The Practice of Surgery,' Bryant.
'The Sixty-second Annual Report of the Royal Hospital for Diseases of the Chest, City Road.'
'On the Progress of Cutaneous Medicine during the present Century.' Being the Annual Oration delivered May, 1876, before the Medical Society of London, by Erasmus Wilson, F.R.S., F.R.C.S.
'The Dublin Morning Mail.'
'The Manchester Evening Mail.'
'Victoria Magazine.'
'Le Progrès Médical.'
'The Students' Journal and Hospital Gazette.'
'The Chemist and Druggist.'
'The Dental Register.'
'Transactions of the Odontological Society.'
'Johnston's Dental Miscellany.'
'The Dublin Evening Mail.'
'The Doctor.'
'Transactions of the New York Odontological Society,' vol. i, 1876.

NOTICE.—Several communications have been unavoidably postponed till our next.

British Journal of Dental Science.

No. 241. LONDON, JULY, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON A CASE OF NECROSIS OF THE EDGE OF THE ALVEOLAR PROCESS AND OF PART OF THE LOWER JAW PRODUCED BY A DISEASED TOOTH.

By Dr. Cav. Cesare Campani, Florence.*

About the middle of last November I was requested to visit Lieut. C. T—, who was suffering, I was told, from an obstinate stomatitis. On seeing him I was at once able to see that it was not stomatitis that affected him, but a severe ostitis in the alveolar of the lower jaw. I found an extensive suppuration under the periosteum, which had its origin in the ascending portion of the maxillary bone on the right side. The pus, after discharging a little from the free edge anteriorly and externally to each tooth, had opened a way for itself near to the second lower molar. There was complete insensibility of the cheek, of the lip, and of the whole chin. The gum appeared in a normal state, a little more congested than usual; great swelling of the cutaneous tissues on that side; violent fever, augmenting greatly at night; shiverings and subsequent sweatings; the general tone greatly lowered; very depressed spirits; he would faint frequently from attempting to sit up in bed.

Previous to the attack he had always enjoyed good health; he had suffered from some slight illnesses, but these were owing to the inconveniences of military life. His temperament was sanguineous, and he was of a robust constitution. Trying to trace the cause of the disease I believe it to have been caused by a decayed tooth, the second under molar right side, which had its nerve exposed one cold night in October; not being able to sleep on account of pain, he had got up and had walked the greater part of the night through the streets of Florence. A rheumatic action had seized the part, producing a swelling which opened by itself externally in the cheek opposite to the first molar, discharging a little pus for four or five days and then closing of its own accord. From that time commenced the local and general symptoms above indicated. These, I believe, were produced entirely by the inflammation of the inferior maxillary nerve at its introduction into the canal of the bone. The treatment which had been pursued up to the time of my visit had been directed to the general symptoms and nothing had been done to combat the local ones, so that the suppuration which had established itself had produced these serious consequences which were proved by my being able to extract pieces of the inferior maxillary bone.

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* We are much indebted to Mr. Dunn, L.D.S., of Florence, for this translation of Dr. Campani's communication to the Italian medical journal, the 'Imparziale.'

In treating the disease, I first made a large incision, commencing at the opening which existed, hoping thus to get the matter away and to save possibly the alveolar portion of the jaw, as also the teeth. It was too late; it gave him some relief, but no amelioration in the part. I then ordered constant fomentations and washes to prevent the swallowing of the pus which flowed abundantly and continually. Tonics and strengthening medicines to raise the general health, which was much depressed, not only by the disease as by the strict diet to which he had been kept. The parts not showing symptoms of recovery, but rather of getting worse, I begged Professor Zannetti to see my patient. He approved the preceding treatment, and we agreed to proceed to extract the diseased tooth which had caused the disease. This was done without the patient feeling pain, but in extracting it I felt that while the tooth offered a certain resistance in its alveolar cavity the jaw gave way to such an extent that I was obliged to hold the first large molar firmly with my other hand.

The patient was greatly excited, fearing that he might die, and was grieved for the loss of the teeth which before I had been obliged to tell him might occur. I, on leaving the house with Professor Zannetti, was able to tell him of the sensation I had experienced in extracting the tooth; we both thought the symptoms were serious, and that the teeth were lost.

In my after-visits I was able to observe the increasing mobility of the teeth, and became convinced that the incisors moved altogether, and the molars in the same manner, so that it was evident that it was not that each tooth moved in its respective alveolus, but that the whole alveolar border moved with the teeth in it.

On relating this to Professor Zannetti, he agreed that it would be better to begin the extraction of the teeth with the hope of facilitating the separation of the necrosed portion of the alveolus, apparently divided into several parts, especially he recommended me to do so quickly, as the patient's strength had increased on account of the generous diet he had been taking. I commenced to extract the right incisors and canine, where I felt the pieces were more loose, and in fact two days after I removed the first piece of necrosed bone belonging to the alveolus of the canine. A week after the portion corresponding to the bicuspids which I had extracted began to move, and four days after that I removed the piece of bone.

The necrosis, however, had extended to the whole of the jaw and a portion of the ascending ramus measuring two centimètres came away. This brought its teeth with it. On February 11th I extracted the last fragment of necrosed bone. The cicatrix of the part is already formed, and the base of the maxillary bone having remained the attachments of the tongue begin to adhere solidly to it. The angle of the jaw having disappeared, a hard (probably cartilaginous) tissue has formed, which, starting from the portion of the ascending ramus, goes to meet the fragment which remains of the jaw.

On the left side the second molar and the wisdom tooth have remained in the alveolus. The external parts have lost all swelling, and the sensibility of the lips, the skin, the chin, and the cheek is re-established. The general health is restored. I now only wait for the cicatrix to become well consolidated, to supply the loss the patient has suffered with an artificial substitute.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London Ophthalmic Hospital, and to the Central London Ophthalmic Hospital.

(*Continued from p.* 292.)

Symptoms of Abscess or Suppuration in the Antrum.—The physical signs of suppuration in this cavity will necessarily differ according to the exciting cause, and when there is a means of exit for the discharge, either through the natural opening into the nasal fossæ, or through a socket of a tooth, or a fistulous opening elsewhere, there will not be the pain, swelling, and distension which are usually the accompaniments of a confined abscess.

In some cases the only indication of suppuration going on in the antrum is the ozænic stench and the occasional discharge of pus. Trousseau relates that he was consulted, on account of ozæna, by a gentleman of forty years of age, who was in good health, except for this source of discomfort. When told to close his mouth and breathe through his nose, Trousseau could detect no bad odour. The patient then said that he could produce the stench at will; he sat down, with his head inclined very much downwards, and discharged into his pocket-handkerchief a large quantity of horribly stinking pus. There was probably some necrosed bone in the antrum with suppuration, but without occlusion of the antral orifice into the nasal fossæ. This case may be taken as typical of the class, there being no pain nor distension, and no external objective signs whatever of the presence of pus in the antral cavity; occasional or constant ozæna, and occasional discharge of offensive pus, being the only signs of the disease. The position of the head during the discharge of pus, when this is capable of control (as in the case of Trousseau's patient), is a very conclusive evidence of the seat of the disease.

Diagnosis.—In a case of ozæna, with occasional or intermittent discharge of fœtid pus, especially if the discharge only takes place when the head is held downwards, or on one side, there is probably suppuration within the antrum, and this may depend upon a necrosed piece of bone lying loose, or in process of separation from the sound parts, or upon a decayed tooth the fang of which communicates with the cavity. In most instances the necrosis will be found to be associated with a decayed tooth, one fang of which perhaps is protruding into the cavity. It is not, however, invariably from this cause. There may be a foreign body of some kind lying loose in the cavity, irritating the lining membrane, but the condition of the teeth must be very closely examined, and in the event of one of them being decayed and tender to the touch, there is every probability of its being the source of the mischief in the antrum. Examination of the nostrils, by means of the speculum, should not be omitted, though the evidence conveyed by it may be merely negative. But it may disclose a trickling of pus into the middle meatus, and if, on inclining the patient's head to the opposite side and again examining the nostril, we find that the flow of pus into the middle meatus is very much increased, the diagnosis is rendered much clearer as to the antrum being the part involved.

Treatment.—The cause being discovered; if it should be concluded that a decayed and tender tooth is at fault, it should be extracted, and the cavity can then be opened through the socket. If pus escape from this opening, it may be syringed out, freely and frequently, with a hope of bringing away any irritating piece of necrosed bone, a misplaced tooth, or foreign body. But in the event of the discharge continuing, the opening must be enlarged and the antrum thoroughly explored with the probe, or a scoop, such as that used by Mr. Cattlin under similar circumstances (see 'Odontological Society's Transactions,' vol. ii, p. 39), remembering that there may be incomplete septa running across the cavity, and that a foreign body may easily be concealed in one of those compartments or fossæ that are so commonly seen in the antrum. The possibility of polypi or other tumours being present, and being themselves the exciting causes of the suppuration, should be borne in mind, and the treatment will have to be modified as the circumstances of the case require.

An instance of tumour in the antrum simulating abscess is related by M. Demarquay in the 'Edinburgh Medical Review' for October, 1867, as follows:

> A man, æt, 53, had had a swelling in his left cheek for twenty years. This for long was only a deformity, but during the last six or seven months had been discharging a large quantity of pus through fistulous openings into the mouth and through the sockets of several teeth that had been extracted, and through the hard palate,
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> M. Demarquay, thinking the symptoms were due to the presence of necrosed bone, attempted its removal, but found it impossible to do so. He therefore removed the whole upper jaw, and then found a bony tumour lying loose in the antrum, like the kernel of a nut in its shell, without any attachment to the bony walls whatever. It consisted of fibrous tissue with a large quantity of calcareous deposit in the interstices, and M. Demarquay suggests that necrosis of this tumour had taken place in consequence of the pressure on its supplying vessels caused by its own growth.

Symptoms of Abscess when the matter is confined.—When there is undoubted obstruction in the orifice, the symptoms are those of confined pus, and resemble the condition of true abscess within bony structures elsewhere, but with some special features peculiar to the region involved.

There is dull, aching pain in the jaw extending up to the orbit, and along the alveolar processes. This may be ushered in with rigors, and associated with general febrile disturbance in acute cases, but more commonly the pain remains as the only symptom for some time, and then a gradual swelling of the jaw comes on, the pain becomes more acute and throbbing, and rigors, increased temperature, restlessness, and febrile irritability are speedily developed. As the jaw-bone is expanded, various alterations in the shape and relations of the surrounding parts are noticed. The malar bone is elevated, the molar teeth are thrust downwards so as to appear elongated in the mouth; the hard palate is depressed and becomes flat or even convex downwards; the nostril of the side affected becomes narrowed or entirely obstructed; the eyeball is thrust upwards and outwards. Mr. Salter has recorded instances in which, besides the protrusion of the eyeball in advanced cases of abscess of the antrum, there was also amaurosis, consequent upon periosteal inflammation extending into the orbit and involving the sheath of the optic nerve (see Mr. S. James A. Salter's article "On the Teeth," &c., in Holmes' 'System of Surgery;' and the article in 'Medico-Chirurgical Transactions,' vol. xlv, by the same author).

When expansion has gone on to the extent described—though it by no means follows that all the above symptoms will be present in every case—there will very often be some spot or space on the anterior surface, or in the hard palate, at which fluctuation is perceptible. In almost all such cases a molar tooth is decayed and has been the cause of the mischief. It must be looked for, but if there be no such offender we must look out for some presenting soft point of the swelling, and, though no fluctuation may be felt, there may be some portion of the walls so thin that they yield under pressure, giving to the finger the sensation of dry, tightly-stretched parchment.

If in doubt as to the presence of fluid, a fine trocar and canula thrust into the presenting part will solve the mystery, and also give evidence of the kind of fluid contained in the cavity. But it may happen that the teeth are all apparently sound, and yet one of them may be the cause of the purulent collection within the antrum, in consequence of the death of the fang, the symptoms of which are not by any means easily detected. A skilful Dentist, however, is sometimes able to get information on this point by striking the crowns of the teeth in succession with a metallic rod, until one of them is found to be more sensitive than the rest, and he then proceeds to test the condition of the pulp cavity of the suspected tooth. If he finds that the pulp cavity in any fang is not transparent, but somewhat opaque as compared with the other teeth, he concludes that the pulp of that particular fang is dead, and may be causing irritation by its presence in the floor of the antrum. The following instance of such an obscure cause of abscess in the antrum, and of its detection, is given by Dr. Garretson ('Diseases of the Mouth and Jaws,' p. 427).*

Mr. C—, late an eminent merchant, after five years of great mental and physical suffering from a disease, supposed to be malignant, of the antrum, was found to have simple muco-puruloid engorgement, depending on a dead tooth. In this case the trouble had commenced with a feeling of heaviness and oppression in the body of the jaw; the parts had gradually enlarged, until finally there was distension of the cheek to the size of a large fist, the eye being thrown entirely out of position from the rising of the roof of the antrum. Much treatment had been given the case without the slightest accruing benefit. No attention, however, had been directed to the dental arch—the teeth, although the patient was sixty years of age, being apparently in the most perfect condition. The result of this case was the diagnosis, on the part of a surgeon, to whom he finally applied, of a dead nerve in one of the bicuspid teeth; the organ, although as healthy looking as any of its fellows, responded to the stroke of an instrument in the manner described, &c. The tooth was extracted, and in six months the health of the patient was perfectly restored. At the time of extraction there was no gush of pus following the fang, but in passing a probe into the alveolus afterwards a yielding body was found obstructing the aperture, which was easily cleared by thrusting the probe onwards. Profuse purulent discharge followed the withdrawal of the probe.

(*To be continued.*)

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 301.)

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II. *Hæmorrhage from the dental periosteum.*—Although hæmorrhage after tooth extraction is not usually so profuse as to require any very energetic treatment, yet it comes under the notice of the Dentist more frequently than any other serious form of bleeding in the mouth. We sometimes have passing hæmorrhage from the gums owing to purpura or from scurvy; we may also have an anæmic temperament where bleeding of a very persistent kind results from the most trifling cause.

The case of hæmorrhage from the dental periosteum, the particulars of which I am about to relate, presents some points of great interest; and, as the patient eventually died from exhaustion attendant upon repeated and persistent bleeding, it has features not usually met with by the Dental surgeon, and merits recording.

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* Dr. Bruck, a Dentist of Breslau, has invented an instrument called the stomatoscope for the purpose of detecting opacities in the fangs and pulp-cavities of the teeth. The Drummond lime light is used as a means of illuminating the tissues. When sunlight is obtainable it is quite possible to render the roots of the teeth clearly visible by sending a beam of light into the mouth, and examining the translucent jaw from within the cheek, taking care, however, to keep the rest of the parts in comparative darkness

On the 7th of March, 1863 (a day made memorable by the public entry of the Princess of Wales into London), I was requested to see Mr. C. He had frequently called upon me professionally, and I was aware that the hæmorrhagic diathesis was strongly marked in his case, for I had distinct recollections of a dangerous bleeding, the result of a leech-bite, that gave much trouble to check. In this instance the bleeding had occurred spontaneously at about 7 o'clock in the morning, the patient being in bed at the time. As upon the smallest provocation he had been used to slight hæmorrhage from the gums, and was prepared with the usual means of arresting the flow of blood, he did not at first feel any alarm, and it was not until the bleeding had continued for a couple of hours that he thought it necessary to send for Mr. Tatam, his usual medical attendant. That gentleman visited him at about 10 o'clock, and for one hour tried every means for arresting the bleeding by the application of various styptics, so that it was about four hours after the commencement of the hæmorrhage I was sent for.

After sponging out the mouth the blood could be seen oozing from between the two bicuspids on the left side of the upper jaw. The teeth were slightly loose, and the gum had receded more or less from the necks of all the teeth, their edges being somewhat congested and about the left bicuspids the gum appeared to be more inflamed than at any 25
other part, and hung loosely on the teeth. As the styptics employed did not appear to arrest the bleeding, a small bladder was filled with pounded ice and laid across the part, but this was equally as ineffective. We then took two pads of lint moistened with the strong solution of perchloride of iron, and placed one pad on the labial and one on the lingual side of the two bicuspids, and held them there by fixing on a compress similar to that employed to check the flow of saliva from the parotid gland. It consists of a couple of plates connected by a steel wire or a band of metal shaped into the form of the letter U. The pressure thus brought to bear upon both sides of the gum was considerable, but the blood continued to ooze between the teeth, and after waiting for about thirty minutes I had to take the compress away. At length we very reluctantly decided to remove one or both the bicuspids, in the hope that we might then be able to get at the exact spot from whence the blood was flowing. A

very careful examination was again made, and the second bicuspid selected for removal, as this tooth was more denuded of gum than the first, and the flow of blood seemed to come more from that side. The tooth was extracted, but there was little or no increase in the hæmorrhage afterwards. The fang was of the ordinary shape and length, slightly exostosed, very transparent, and wax-like. As the tooth was suitable to be made use of as a plug, I covered the fang with lint moistened with the solution of iron, and drove it into the socket. I then took a thin piece of wood (an ordinary paper-knife being at hand, it was used) and placed it across the mouth. A bandage fixed to each side of the knife was tied over the head, and so the patient was left for half an hour. The bleeding seemed to be thoroughly arrested, and did not return. At the end of two hours the wooden mesh was removed, but the tooth was left in its place until the following morning, then it was carefully taken away, as the hœmorrhage showed no signs of returning. The piece of lint was allowed to remain two or three days longer, when it came away of itself.

I greatly regret that I had no opportunity of following up this case, but the patient went to reside in the country, and it was not until many years after upon making inquiries I learned that he was dead, and that his death resulted from exhaustion attendant upon a severe attack of hæmorrhage, but whether in the mouth or from the nose (a very common form of bleeding with him), I could not ascertain. 2

That hæmorrhage after tooth extraction, and after other operations may more frequently occur in one district than in another, I think we have no reason to doubt. Certain diseases are more prevalent, I have understood, in one locality than another, and I have the testimony of a very intelligent pupil of mine, acting as assistant at an hospital situated in one of the midland counties, who assures me that troublesome hæmorrhage after extractions came before them as frequently as one in five hundred cases.

He afterwards superintended a very large operating practice on the east coast, and in two years, after performing nearly three thousand operations, he had only met with one case calling for special treatment owing to continuous bleeding. I think if we were furnished with statistical reports on matters of this kind a large amount of general information of a very useful character might be collected. That even in patients decidedly anæmic no ill-results may follow an operation the following case tends to confirm, and of the two the greater danger results from spontaneous bleeding than that induced by the laceration of a part.

A boy was brought to me suffering acutely from toothache, but the parents objected to the tooth being extracted, as he had from a child been subject to copious bleedings upon the smallest provocation. The medical gentleman who attended the family seconded me in advising the removal of the tooth, feeling confident that we could arrest any hæmorrhage that might follow. The tooth was therefore extracted—a first permanent molar of an unusually large size—and no ill-results followed; indeed, the bleeding ceased of itself about fifteen minutes after the operation.

A short time ago I had rather a remarkable case resulting from hæmorrhage following tooth extraction. After removing two lower teeth surrounded with hypertrophied gum there followed a very profuse bleeding which took nearly an hour to arrest. The following day the lady called upon me with the lower lip quite black. The discolorization had extended as far as the base of the maxilla. The blood had infiltered through the soft structures, but excepting the disfigurement no bad results followed.

I may not have a more fitting opportunity of relating the particulars of a very singular case that came under my notice many years ago, and as the facts carry a small warning with them they may be worth relating.

Mrs. F—, a lady, about fifty years of age, called upon me to show me a swelling on the upper jaw that she said had been slowly travelling from the base of the second bicuspid until when I had an opportunity of seeing the case, it stood between the first bicuspid and the canine tooth low down on the buccal side. It was a hard circular lump about the size of a sixpence in circumference. She had not suffered any pain, nor was there any inflammation surrounding it. It could be readily moved about, and yet did not appear to contain fluid. My first impression was that it might be some description of cystic tumour. I determined, however, to lay it open, and upon making a crucial incision I turned out a ball the size of a Spanish nut, which upon examination proved to be a pellet of cotton wool with a fragment of alveolus imbedded in it. The cause of this singular appearance can be easily accounted for. About two years before seeing me Mrs F— had the first upper molar of this same side extracted, and with it, no doubt, the front plate of the alveolus was broken away. The bleeding according to her account was very profuse, and she distinctly remembers that finally a pellet of wool was forced into the cavity. This the gum had evidently grown over, and it had gradually worked itself into the position in which I found it.

(*To be continued.*)

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ON ODONTALGIA AND NEURALGIA.

A paper read before the Dental Students' Society, March 13th, 1876.

By R. Birt, Esq.

(*Continued from p.* 306.)

But the most important consideration to us is, that we are called upon to stop teeth that are already in this condition, or to reduce them to this condition, by destroying the pulp. Such teeth are very useful members of society, if the treatment has been fully carried out; but if this is not the case, or if they have been long subject to disease prior to our treating them, they are, so to speak tell-tales of the general condition of the health: they are apt on any departure from it to give unpleasant indications of their presence in the shape of pain. This, I think, is owing to active congestion of the periosteum which corresponds to the first stage of inflammation.

The membrane is for the time thickened; the tooth slightly raised in its socket is the cause of a dull aching pain; which on pressure becomes more intense. Generally in the course of a few days these symptoms abate, and the tooth will stand pressure, and all symptoms of congestion or inflammation disappear. Such a course of symptoms often occurs in the first stages of common catarrh in the case of perfectly sound teeth; which become perfectly firm again in the course of a few days.

Exostosis is very often the result of disease in the crown of a tooth; but it also occurs in teeth that are otherwise quite sound. The lesion consists in the fresh deposit of cementum at any part of the fang; though most often we find it confined to the lower third; but in some cases the greater part of the fang seems encrusted with the new deposit. Sometimes only one surface of a tooth is affected, the remaining surfaces being quite free. In other cases it assumes the form of a small tubercle at some part of the fang between the apex and neck of tooth.

The fresh deposit consists of circumscribed new layers of osseous substance; more or less resembling the normal cement. It is developed slowly, and is very often the cause of severe pain which is seldom felt in the tooth itself, and is often quite neuralgic in character. The pain is said to be due to the increased tension of the nerves of the periosteum of the root, and to the secondary affection of the branches of the nerves of the pulp; where the crown of the tooth is diseased and the fang is exostosed the margin of the gum often exhibits change, being thickened and of a deeper red colour, but when the crown is intact and the diseases arises from some constitutional irritation there are no definite symptoms of disease about the tooth, as long as it remains *in sitû.* But very often, though the pain is quite reflex, there are some definite symptoms of uneasiness about such teeth, prior to or during an attack of pain, this consists in some indescribable feeling of discomfort about the tooth, not amounting to pain. And in some cases, rather rough manipulation of the tooth or pressing the gum over the fang will induce an attack of pain.

Difficult eruption of teeth, especially the wisdom besides pain often gives rise to a whole train of symptoms.

Local inflammations, sympathetic discharges from the ears, neuralgic headaches, relaxed throats, enlarged tonsils, disturbed circulation, sympathetic cough, constipation, palpitation, coated tongue, besides muscular spasm, muscular paralysis, paralysis of some of the nerves of special sense.

The cause of difficult eruption of wisdom teeth seems to be in most cases insufficient room in some cases owing to an indurated gum, but in nearly every case the tooth is only partly erupted, and the gum over the remaining portion of the tooth gets crushed every time the mouth is closed and becomes very much inflamed, ulcerated, swollen, and the surface pours out a quantity of pus, the neighbouring parts become inflamed and infiltration takes place to a greater or less degree, trismus, and the formation and retention of a tremendous quantity of pus in the soft parts of face.

In other cases the mucous membrane of the opposite jaw suffers owing to the wisdom impinging on it when the mouth is closed.

In other cases the cheek suffers, becoming inflamed and pinched when the mouth is closed, the surface ulcerates, and the submucous tissue infiltrated and hard as well as painful.

In other cases when the crown of the wisdom is directed forwards the second molar suffers, becoming eroded at the neck from the wisdom impinging on it till in some cases the pulp cavity is reached.

In other cases from malposition of the tooth there is reason to believe that the fangs are actual irritants to the dental nerves, thus giving rise to severe neuralgic pain. Except in this case, the pain is generally of a dull aching character, often extending over the side of the head and down the shoulder.

Impacted teeth sometimes give rise to severe pain, it is difficult to say how this happens unless the tooth is so placed that it causes direct irritation to the dental nerves.

In cases where the capsule of an impacted tooth takes on a secreting function, pain is more easily accounted for by the local disturbance, as distension of the alveolus, and in some cases the formation of abscess. The gum when in a state of health is nearly if not quite insensitive, when it becomes inflamed the inflammation rapidly extends to the periosteum, and is the cause of more or less pain; or when from the irritation of a sharp edge of a carious cavity or tartar, or when it grows into a sort of polypus between two decayed teeth, it gives rise to pain that is not uncommonly referred to the tooth itself, and in cases where it is ulcerated it is exceedingly sensitive and often very painful.

Some of the diseases and disorders of the system that commonly affect the teeth are rheumatism, gout, dyspepsia, disordered menstruation, chlorosis and anæmia, general debility, however caused, and common catarrh. Rheumatism I mentioned as being a cause of general periostitis; it also seems to give rise to a sort of rheumatic neuralgia; without going to the extent of inflammation, the symptoms are constant dull aching pain which becomes more intense at intervals. The pain is shifting, now affecting the jaw, now the face, now some of the teeth, especially those which happen to be diseased, there is generally more or less rheumatism in other parts of the body, as shoulder, arm, chest, &c. It is distinguished from other forms of neuralgia by its history, it in general following exposure to wet and cold; a very common cause is sitting in a draught as from the window of a railway carriage. People of a gouty diathesis, when the disease does not show itself in the usual way, get metastasis of the disease to the head and other parts of the body, as stomach, heart, lungs, spinal cord, &c., but metastasis to the head is said to be the most common form of misplaced gout. The symptoms are headache and giddiness, a sense of fulness in the head, confused perceptions, impaired powers of thought and memory. On stooping the sight is apt to become confused, or the patient may be seized with temporary blindness, the face and scalp are apt to flush, hearing is often painfully acute, and during an attack the ear, eye-balls, fauces, and tonsils, are apt to suffer, and very often the teeth. Dr. Gardiner in his work on 'Gout,' says that odontalgia, without the slightest decay of the teeth, is frequently witnessed in and owes its rise to gout, and he says that he has seen such teeth extracted without the least relief. I think, no wonder, if the teeth were sound; I have myself seen such cases where teeth have been extracted, and they were perfectly sound with the exception of exostosis. One case I well remember, where all the remaining teeth were extracted, and they were all more or less exostosed, and though the operation did in some degree give relief, it was by no means a cure. I think the chief importance to us in recognising this disease is the undesirability of administering gas to such patients, as they are preeminently predisposed to apoplexy, and inhalation of a narcotic gas is stated to be an exciting cause to that dire event. In dyspepsia we get symptoms of disordered function all through the alimentary canal, and in the first part, this is often especially apparent as a foul, furred tongue, but the appearance of this organ in dyspepsia is very variable. It is often marked by indentations produced by the teeth. It is often marked by deep cracks; sometimes the base is furred and the sides and tip are bright red, &c. The gums also suffer in this disease; they are very often spongy and chronically inflamed with either absorption of, or the addition of, porous bone to the outer surface of the alveolus; the teeth are, without attention has been paid to them, invariably found in a badly carious condition. The secretions of both stomach and mouth are very often acid; and there are various other concomitant symptoms, as headache, flatulence, with pain about the heart and under the scapula, tintinous palpitation, and irregular pulse, and many other symptoms I cannot dwell on. People suffering from dyspepsia very often suffer intensely from odontalgia; the reason is too obvious to require discussion; the presence of carious teeth with the presence of a constant irritant, the disturbed functions of many other organs, inflamed gums and the extension of the inflammation to the alveolar periosteum; the stringy mucus often seen in these cases, which is an irritant to both teeth and gums must be sufficient reason for the suffering we see in these cases; and it is not saying too much on the other hand to say that decayed or sensitive teeth or tender gums are the primary cause in very many instances of the dyspepsia, these are cases where local treatment alone is of inestimable benefit to the patient.

In the first months of pregnancy women often suffer from a sort of chronic dyspepsia marked by morning sickness and acidity of the secretions of the stomach and mouth, at the same time the system is in an irritable condition from the tax on the vascular and nervous systems, so that it is not to be wondered at that at such times odontalgia and neuralgia are rife.

In debility, however caused, whether from overwork of brain or body, or from wasting discharges or insufficient or perverted nutrition, there is a strong predisposition for pain and from the same reason pain is rendered more diffuse and intense in debilitated subjects, for this reason very often a slight pain is aggravated into an intense neuralgia. In cold we often get congestion of neighbouring parts, and more or less determination of blood to the head and the functions of the skin and kidneys interfered with, and teeth that are in at all an irritable condition are at these times sure to suffer.

The definition of the word neuralgia is nervous pain, so that, correctly speaking, it expresses the symptom pain in some disordered state of the nervous system whatever that may be. An old definition of neuralgia is that it is a very severe pain affecting the nerves, not necessarily produced by any organic lesion. A later one defines it as a disease of the nervous system in which pain is a prominent symptom. This pain is characteristic; it is either intermittent or periodic. It occurs in paroxysms which are marked by periods of entire cessation from pain. These periods are sometimes quite uncertain as to duration; thus, they may be either hours, days, or months. In other cases the paroxysms of pain come on with great regularity at stated times either in the day or night. Sometimes a dull aching proceeds paroxysms, but usually they are quite sudden in their accession and are of short duration, and are followed by complete freedom from pain till the next attack, which is usually of greater violence than that which preceded it. It being a characteristic of neuralgia, that it tends to extend and to increase in severity. The pain in these attacks is usually very severe, often being the most intense anguish. It is described as being of an intense darting, stabbing or acute burning, or acutely lancinating character. It also appears to follow the course of the particular nerve affected, and to ramify into few or all of its terminal branches. It is generally confined to one side of the head or face, &c., or, in other words, is unilateral.

A further characteristic of neuralgia is that these attacks of pain may continue for a long period without change being visible in the part affected, with the exception of some tenderness for a time after an attack which, in the course of time, is apt to be more persistent with other signs of local change. Another symptom often present, and due to other nerves becoming secondily affected, is local hyperæmia and congestion of neighbouring parts; this, if it occurs in a gland will produce hyper-secretion. Thus, we often get an increased flow of saliva or tears during an attack, and in some cases in the course of time arrested secretion, inflammation, and ulceration of tissues. The motory fibres of the same and other nerves are also very often affected, and cause tonic or clonic contraction of the facial muscles, &c. Tenderness over the spinous processes of the first two cervical vertebræ has been advanced as a diagnostic symptom of neuralgia of the fifth nerve; but it only seems to be constant in cases of long standing.

The characteristic of neuralgia to particularly affect certain spots has been recognised and confirmed by the most eminent authorities. These foci, as they are termed, are the spots where the pain is most intense, and from which it radiates in the paroxysms. They originate either at the points where the sensitive branches of the fifth pair emerge from their bony canals, and enter the soft parts of the face, in the terminal ramifications in the skin, mucous membrane or teeth, or where the terminations of the nerves join or communicate with one another.

Mr. Tomes in his admirable work enumerates the following in the case of the fifth nerve. In the first division, one at the supra-orbital foramen, one at the upper eyelid, one at the emergence of the nasal branch at the junction of the nasal bone and cartilage, one within the eye, and one at inner angle of orbit. In the second division the infra-orbital at infra-orbital foramen, the malar on front of malar bone, the palatine at posterior palatine canal, and the whole alveolar border. In the third division, the temporal, at a point a little in front of the ear, in the course of the auriculo-temporal nerve. The inferior dental, the mental, the lingual, the labial. But a spot near the parietal eminence known as the parietal focus is specially pointed out by both the authorities Tomes and Salter.

Near this spot a number of nerves terminate and inosculate. It may be well here to mention the indications that these foci afford as a means of diagnosis. Mr. Tomes says that when pain is most severe in the parietal regions or at the upper part of temple, the affected tooth is generally far back in the upper jaw; when the pain is felt in the eye the tooth may be found in any part of the upper jaw, pain referred to the ear or to the region of the temporo-maxillary articulation is almost diagnostic of a lesion in the lower teeth, and generally far back in the mouth. The pains in these foci is sometimes continuous for hours or days together, and is described as being dull, heavy, gnawing, dragging, aching, it is usually not very severe and varies in intensity. As regards the conditions of the teeth that are exciting causes of neuralgia, nearly every disease to which they are liable seems able to produce it; but as far as I know there must be some diathesis or predisposition on the part of the patient that the pain manifests itself in this erratic manner. I firmly believe that the gouty and rheumatic diathesis predominate as predisposing causes, and, as far as I have seen, it is exceedingly often hereditary. Other predisposing causes are debility and chronic dyspepsia, malaria, hysteria, and many others. The exciting causes to an attack are temporary exhaustion or acidity or debility, however caused.

The lesions of the teeth that most commonly give rise to neuralgia are chronic inflammation of the pulp, exostosis, roughening, and absorption of the fang, leaving the apex pointed. Chronic inflammation of the intra-alveolar membrane with its sequelæ, as chronic abscess or a bulbous condition, difficult eruption of the wisdom teeth, supernumerary teeth, impacted teeth, crowding of teeth, and misplaced teeth. Other causes are stated to be irritation to the dental nerves in the bony canals through which they pass either from inflammation of the periosteum of the canal or inflammation of the nerve itself, inflammation and tumefaction of the periosteum and lining membrane of the antrum, osteophytes, and other tumours of the jaws, &c. The apex of a fang or portion of the alveolus producing irritation after an extraction. Intrinsic calcification of the pulp. The presence of pus in the pulp cavity. The formation of nodules of dentine on some part of the wall of pulp-cavity. Of the pathology of nerves in neuralgic affections, not very much seems to be known.

Kolicker states that in atrophied nerves the sheaths are thinner, readily break down, and that instead of white substance are often partially or completely filled with small fat molecules. Neuritis, inflammation of a nerve or its sheath, seems to be present in some diseases, as rheumatism. Neuroma, fibrous tumours developed in the sheath of a nerve, are sometimes the cause of great nerve irritation, but other cases exist and are painless. Rosenthal mentions knotty swellings of resected nerves consisting of connective tissue and interposed nerve fibres. Professor Wedl found in portions of resected nerves, that it is possible to demonstrate disordered conditions both in the nerve tubes and neurilemma, that in the neurilemma hyperæmic swelling occurs, and that the neurilemma, the medulla, and axis cylinder were rendered cloudy by a fine granular deposit occurring in single tubes or in a small group of tubes, while the remainder were quite normal. In old chronic cases pigmented granular spots in the neurilemma, and a crumbling disintegration of the medulla were also observed. In one case he found highly refractive calcareous forms symmetrically arranged in chains resting upon separate nerve tubes. He regards these degenerations as the result of an inflammatory process produced by the peripheral irritation. Schuh records a case of severe neuralgia in which granular deposits existed in both Gasserian ganglia. On the affected side there was enlargement of the ganglion from increased vascularity and exudation.

When a nerve has been bruised or stretched or compressed, or if it has been partially divided which causes increased tension on the remaining fibres, or if it has been wholly divided and the ends become implicated in the process of healing, symptoms follow which more or less resemble neuralgia from other causes as severe pains, shooting in the course of the nerve, spasms, palsy, epilepsy, &c.

(*To be continued.*)

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

(*Continued from p.* 312.)

On Additions and Repairs.

It is so easy to make an addition to an old piece without disturbing its fit, by packing vulcanite on it on the model, that this is often the most advantageous method of dealing with gold pieces. But when so done the gold part must be good strong work, not likely to need future repair, as it rarely happens that any satisfactory soldering can be done subsequently to the addition of the vulcanite.

There is very little cohesive power between gold and rubber; therefore we must depend upon a mechanical form of attachment to hold them together.

We can allow the gold to enter the vulcanite and be grasped by it; or, *vice versâ,* the vulcanite to enter the gold.

In each case the following points must be attended to:

Gold is incomparably stronger than vulcanite; therefore the attachments of gold which enter vulcanite must be much smaller in bulk than the vulcanite which holds it, and must enter it for some distance, or it will be liable to be broken out. Wire is generally the best form for such attachments. Short pieces of gold wire having their ends flattened by a blow of the hammer are convenient. They can be bent into loops, the flattened ends being soldered to the plate, or, one end being soldered to the plate, the other flattened end may have a hole punched in it. (See Figs. 15 and 16, *bb*.)

On the other hand when the vulcanite enters the gold its substance must be greater than that of the gold surrounding it; and as there is never the same thickness of gold as may be had in vulcanite, this method is only adopted where the latter substance may be allowed to overlap the gold plate for some distance. In this case holes larger in diameter than the intervening plate should be made along the edge to be overlapped, and these should be countersunk on the side opposite to that about to be covered with rubber. (See Figs. 16 and 17).

In each case of attachment each material passes into or overlaps the other, and there are two points where this overlapping ceases. These points require attention.

Where the gold leaves the vulcanite will be the point of deepest attachment of the vulcanite, and escape of the gold; and where the vulcanite leaves the gold will be that of deepest attachment of the gold and escape of the vulcanite.

The gold at its point of deepest attachment will have no transverse breaking strain, but will only have to resist a drawing strain. It, therefore, may be very slight; if wire, it may be flattened and an eye punched through. But as it gets nearer its point of escape it must get stiffer and the points of escape both of gold and vulcanite should be as strong as the rest of the plate, or fracture may be sooner or later expected.

The same principle applies to vulcanite where it overlies a gold plate. Its strongest attachments must be close to its point of escape: its deepest attachments being graduated to support the gold plate, which has been weakened at the edge by the large holes made, and also to prevent its edge, where it lies flush with the upper surface of the gold, from being chaffed up by wear. (See Figs. 16 and 17 *c c c*.)

Mr. B— had worn for many years a nicely fitting gold upper supplying the bicuspids of both sides, as well as the first molar of the right side. The stumps of these teeth had been allowed to remain by the maker of the piece; but these had become loose and troublesome, and were consequently removed.

The subsequent absorption having ceased he wished to have a new piece; but the palatal portion of the plate fitted so well that it was determined to add teeth and fresh base over the alveolar ridge with vulcanite.

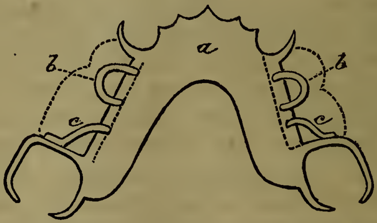
The gold covering the alveolar ridge and carrying the teeth was sawn off, leaving on the band around the left molar; the right one, being imperfect, was removed.

The plate in this state was placed in the mouth, and an impression taken which brought away the plate in it. Into this, plaster was poured, producing a model with a correct impression of the alveolar ridge with the palatal portion of the gold plate in its right position relatively to it.

A loop of gold wire was soldered on at each side so as to take hold in the mass of vulcanite under the teeth. A new band having been fitted around the right molar, wire stays were soldered from the plate to the bands. (See Fig. 15).

The plate was then placed on the model and teeth arranged to the bite; vulcanite was then packed on the alveolar ridge and around the attachments. The teeth were then set as described in my last chapter, and the piece vulcanised. When finished it answered very well.

FIG. 15.



a. Gold plate. *b b.* Wire loops flattened at the ends and soldered to the plate. *c c.* Wire stays flattened at the ends and soldered to the plate and bands. The dotted lines enclose the parts covered by the vulcanite and teeth.

Mr. W— had a small upper gold plate carrying four flat back incisors with clasps around the canines. The crown of the right canine having given way the piece would not keep up. A flat back tooth was added to the plate with a pivot running up into the root of the canine; but this did not answer.

There were no back teeth on the left side, and none until the second molar on the right. The gold was stout, the backs of the teeth short and strong, so that in case of accident a tooth could be replaced by rivetting, and the piece looked well.

It was therefore concluded to fill up the vacancies in his mouth by adding teeth in vulcanite. Thus giving him a piece more comfortable than a new vulcanite piece at half the expense.

More comfortable than a new vulcanite piece, because thinner behind the front teeth where the tip of the tongue lies. This being one of the parts of the mouth where a thick plate is particularly obnoxious to the patient.

An impression was taken with the plate in the mouth, and the model poured as in the previous case.

Wire attachments were soldered to the plate so as to enter the vulcanite over the alveolar ridge. (See Fig. 16 *b b*).

Fig. 16.

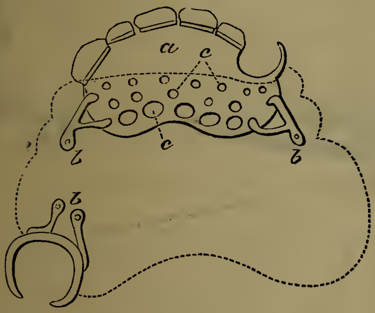


Fig. 17.

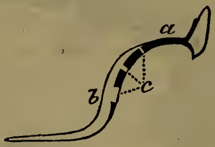


Fig. 16.—*a*. Gold plate carrying five teeth. *b b b*. Wire stays soldered to plate and clasp, having their ends flattened and holes punched at the points of deepest attachment for better hold in the vulcanite. *c c*. Holes in the plate to give attachment to the rubber. The dotted line encloses the space covered by the vulcanite and teeth of addition.

Fig. 17.—Medial section of Fig. 16. *a*. Gold plate. *b*. Vulcanite ditto. *c*. Holes through the gold filled by vulcanite to show counter-sinking from the under side.

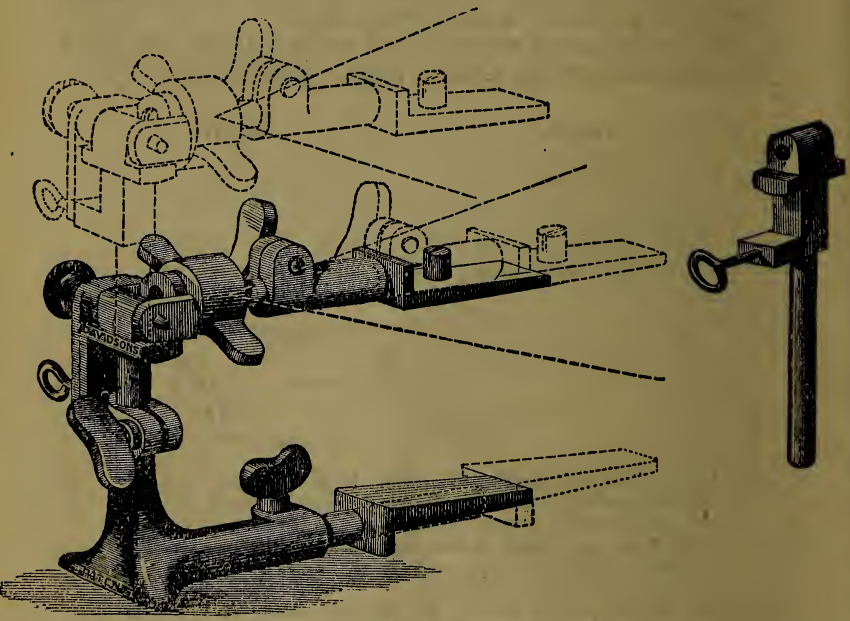
Holes were made in the plate, Figs 16 and 17 *c c*, as previously described. A band was bent around the molar, and attachments soldered to it as figured Fig. 16.

The teeth after having been fitted to the bite were set as in the previous case. Vulcanite having been packed over the part indicated by the dotted line Fig. 16. The piece was vulcanised and finished, when it answered satisfactorily.

(*To be continued.*)

DAVIDSON'S ARTICULATOR WITH SET- OR LOCK-PIN ARRANGEMENT.

In again calling the attention of the Dental profession to my articulator I wish particularly to point out the great advantage of the *lock-pin* arrangement, whereby the models can be permanently set at any angle or position, so that an alteration of the bite cannot possibly occur after the instrument is *locked to the bite,* nor can the workman make a mistake in arranging his work, and it always allows the exact position to be again obtained for any future occasion.



The engraving shows the articulator set at right angle with short sliding bar, and the dotted lines with the long sliding bar at their lowest back positions half size of the instrument; the **V**-shaped lines show the direction the models can be moved in by the ball-and-socket joint, and will draw longer and wider in all those directions.

The advantages are very numerous, and its working absolutely perfect, as I have made up to this time of using it 130 cases without one misfit, or an alteration of the bite being necessary after finishing the work.

One feature is that it allows the models to be made on the articulator, when it is first made from the impression, and in a moment it can be adjusted to any bite that any case may require without any further use of plaster.

The operator can arrange the bite in one minute and *lock* it in that position, and keep it so while the case is being set up, and instantly lock or unlock it during the process of setting up.

A full descriptive circular to be obtained at all depôts, where they may be seen with models attached, and by the uses of machinery they are now produced more perfect and at a reduced price.

The articulator may be seen in use at my workshop any Tuesday after 4 p.m., and when the simple way it is adjusted is once seen, and the perfect work that can be produced by its use is more known, few Dentists who value putting perfect work in the mouth will be without one of these articulators.

415, Old Kent Road, London.

CLEANING AND REDUCING GOLD FILINGS.

It would appear that the usual process for the recovery of dirty filings is unnecessarily tedious. Taking 2½ oz. of very dirty filings from a tray not in regular use, I added 3 oz. of strong nitric acid, and boiled the mixture in an enamelled iron cup until nearly dry, stirring occasionally with a glass rod so as to expose the whole surface of the filings to the proper action of the acid. I then washed the residue repeatedly with water, pouring off the washings into a bowl to settle.

The filings did not look by any means clean, as they contained a large amount of insoluble foreign matter, but I melted them up with the blowpipe and ingot mould arrangement. The result was a smooth ingot, hard and elastic when rolled, but perfectly sound and tough. It would appear from this that the recovery of the dirtiest filings is really little more trouble than the production of plate from scrap, and from its hardness and elasticity the gold obtained is particularly valuable for bands, &c. The quality was as near as possible the same as the plate from which the filings were obtained; the platinum always present in filings will fully account for the special hardness.—Thos. Fletcher.

ON RETAINING UPPER SUCTION PIECES IN THE MOUTH.

By Alfred Jepson, Esq.

In the 'British Journal of Dental Science' for December, 1874, there is a description of a new method of retaining upper suction pieces in the mouth, by Mr. J. Evans, of Albany Street; having tried this method in over a hundred cases with great success, I have thought it but right to acknowledge the benefit received, and openly thank the gentleman who has been the donor to the profession of this improvement.

I am always in the habit of taking plaster of Paris impressions, and have tried suction chambers and other ways for fixing upper plates firmly in the mouth, and although these have answered admirably in a large majority of cases, I have never, till adopting this new method, met such uniformly successful results. I somewhat hesitated at first, as I was fearful of the results which the "spurs" (as Mr. Evans calls them) might produce, but after seeing so many cases I am perfectly satisfied that temporary inconvenience is the only thing that need be feared from them, and that the deeper they can be borne the better the plate will answer afterwards. As a rule I have left them so deep that the plate cannot sink into place at once, but after a short time they will quite go home, and although the mouth may be tender for a few days, there is really very little discomfort to the patient at the time and none afterwards. Of course, should they be found too deep after wearing, so as to cause any abrasion and ulceration, they are very easily reduced in size.

In cases where the bicuspid teeth alone require replacing, or where it has not been desirable for the plate to touch the front teeth, in consequence of their partial luxation through the lower incisors biting on them after the loss of the back teeth, I have been more than satisfied, as they have answered admirably without clasps or anything which could wear or injure the teeth in any possible way.

I do not know whether any of my professional brethren have tried this method, but if not, I think they would certainly derive great benefit by doing so, and if any have already made the trial, I should much like to hear whether their experience coincides with mine.

As far as I am personally concerned I feel that the thanks of the profession are due to Mr. Evans, and for this reason I hope you will excuse the liberty I have taken of intruding on your space.

Leamington.

ON THE NEW ATMOSPHERIC DISCS.

In continuation of Mr. Musgrave's excellent remarks on the new atmospheric discs, in your May issue, will you allow me to add a few words on this important subject? Not only do the plates rock and tip in the mouth, but after a period of two or three months a considerable change takes place. It will be found on examining the disc that it has changed its original colour, black, to that of a light buff, and, moreover, it has become enlarged and flattened against the palate to double its original size. When this occurs the disc is worn out, and there is no adhesion whatever, so to make the plate hold a new disc is required, which incurs an additional expense; and if the patient returns every three months for a new disc, the profit on the plate would be, in time, considerably reduced. You will find on more careful examination, when the disc is worn out, that it is composed of two separate parts closely adhered together.—Eimerk Showler.

Being desirous to become practically acquainted with all new inventions which appears to possess any merit and relating to matters connected with our profession, I made trial of the new atmospheric disc. In theory I fancied it was exactly the thing wanted, and would prove a most useful aid for retaining artificials firmly in the mouth, where few or no teeth were remaining, or where we wished to entirely dispense with bands. How different experience has proved it. The disc most certainly attaches itself with great tenacity to the palate, but instead of drawing closely home the plate merely serves as an atmospheric suspender, the disc being fixed by a rivet and small metallic disc in the chamber made for its reception in the plate, and, being of soft elastic india rubber, will naturally stretch from the weight of the artificial case and hold it suspended. Were the entire lower surface of the disc attached to the plate as firmly as the upper is to the palate we might have a different result. I should like to be able to suggest some plan which would render the disc more useful, but the more I try the more I am convinced it will require a more inventive mind than mine to do so. The atmospheric disc I consider to be of little practical value. I have found it to injure the palate considerably. In a short time it loses its shape, elasticity, and colour, and appears far from being durable.—G. B., Chester.

British Journal of Dental Science.

LONDON, JULY, 1876.

However flattering to our specialty may be the attention that has been recently devoted to it by the medical papers, and especially by the 'Lancet,' it is to be hoped that they will in future take note of and profit by the opening observations of Mr. Tomes in the very excellent letter sent by that gentleman to the 'Lancet,' and reprinted in a subsequent page of this Journal. Mr. Tomes very justly says, "the attempt to bring the influence of the medical profession to bear upon the training of Dental Surgeons can be of advantage only when medical men are made fully acquainted with the scope and requirements of Dental Surgery, an accurate knowledge of which they do not at present possess." And we will add that it would be, moreover, as well if those whose effusions are editorially adopted by the 'Lancet' were to make themselves a little better acquainted with what has been said and done in reference to our specialty during the last twenty years, and they would thereby save the 'Lancet' from an appearance of inconsistency, which is simply the result of ignorance and inexperience on the part of some of those in whom it too rashly trusts for correct information on Dental surgery. In view of the recent depreciation of the value of the Dental Diploma in the pages of the 'Lancet,' it is somewhat curious to turn to p. 343 of the 'Lancet' for September 3rd, 1870, where, in a favorable notice of our Dental Students' number, the Lancet writes as follows:

"The special information addressed to students of the medical profession by ourselves and our contemporaries is deferred to next week, but we find that the 'British Journal of Dental Science' has already given to its readers, in the September number of that periodical, a variety of information most useful to the intending student of Dental Surgery. We learn from the article on Dental education that Dental

Students may be divided into four classes, which are thus described:

"'1st. Those who enter with the intention of obtaining the Diploma of Member or Fellow of the College of Surgeons, and also the Diploma in Dental Surgery.

"'2nd. Those who propose to take the Diploma of Member or Fellow of the College of Surgeons only, ignoring and affecting to despise the Dental Diploma.

"'3rd. Those who propose to take *only* the Diploma in Dental Surgery.

"'4th. Those who seek one of the American Dental Diplomas.'

"To the first our contemporary has little to say save to congratulate them on their resolve. With the second no sympathy is felt, and their number is stated to be small. The third class are reminded *with perfect correctness* that 'the Dental Diploma is the only real qualification for a Dentist, the only diploma that is an actual guarantee that he has been properly educated in his profession, and as far as examinations can ever be a test to fitness, that he has profited by the course of study he has professedly passed through, and is qualified to practise as a Dental surgeon;' whilst they are warned that no depreciation of the purely surgical diploma is intended, and are advised to pass the preliminary examination for the higher degree at once, so that the professional labour undertaken for the lower may count for the higher diploma."

We have italicised the three words above to indicate more surely how clearly the 'Lancet' then appreciated the value of the Dental Diploma, and how thoroughly it endorsed the succeeding statement quoted from our pages; whilst in the further summary of our views respecting the surgical diploma the 'Lancet' does not even speak so warmly in its favour as we did in the article alluded to, and confines itself to pointing out the convenience of passing the preliminary examination in arts at the beginning of the Dental course.

We cannot but think that if the recent writers in the 'Lancet,' and especially the author of the article in the issue for May the 27th, had been properly conversant with the subject, he would scarcely have committed that paper to such inconsistency.

Literary Notices and Selections.

ON THE PROFESSION OF DENTAL SURGERY.

A Letter addressed to the Editor of the 'Lancet.'

By John Tomes, Esq., F.R.S.

Sir,—The attempt to bring the influence of the medical profession to bear upon the training of Dental surgeons can be of advantage only when medical men are made fully acquainted with the scope and requirements of Dental surgery, an accurate knowledge of which they do not at present possess. The existence of special journals, while they render great service in bringing before the Dental practitioner all that relates to his calling, tends to remove from the eye of the general practitioner much that he well might know, and more that it is needful that he should know if he would form a just opinion of the present state of Dental surgery. The absolute necessity for a long special training in order to acquire moderate capabilities as a Dental practitioner is very generally overlooked, and the power to pass an examination in surgery and to write a prescription is accepted as a sufficient education for the Dental surgeon. But those whose powers constitute them efficient judges know full well that there is little difficulty in recognising what is required in the treatment of a case, but very great difficulty in acquiring the power to carry it into effect. To take out a large portion of the softened tissue from a carious tooth and to fill up the hole with a plastic material requires little skill; but to remove the diseased part as fully as may be, to leave the cavity in a form capable of retaining a long-lasting plug, and to introduce that plug —in fact, to perform the operation up to the highest standard of excellence, without an undue expenditure of time exhaustive to the patient and operator—requires great skill, a degree of skill gained only by patient training over at least two years in pupils naturally not inapt. Let any one interested visit the Dental Hospital, and watch the performances of students of one year, then those of two years' training, and, if possible, the operations of the more skilful teachers, let him then try his own hand, and all I have stated will be admitted. That which is true respecting filling teeth applies also to other Dental operations. But the Dental surgeon will be occupied three fourths of his time in treating carious teeth, and, if his operations are rightly performed, he will have rendered good service, and secured the lasting gratitude of his patients.

Were it otherwise we should find medical practitioners using the lesiure hours of their early professional life in the performance of Dental operations. In truth the education of the surgeon does not embrace Dental surgery. A man may be a member of the College of Surgeons or Physicians or of the Apothecaries' Company, and yet know nothing of Dental surgery; and it would be unreasonable, and, consequently, all but impossible, to impose upon him a long and expensive training in a specialty he is not specially destined to practise; and, again, the knowledge acquired would be speedily lost unless constantly practised. That which would be true of the general surgeon applies with equal force to the Dental surgeon; whose knowledge of general surgery fades from disuse by the time he acquired his general diploma; for his specialty will, if rightly practised, demand all his time and thoughts. He cannot remain an effective general surgeon if he would be a faithful Dental surgeon. He may be a legally qualified practitioner, but, without use, the knowledge he acquired up to the level of a pass examination will speedily waste, and he will become morally disqualified.

These facts were fully recognised twenty years ago, when the College of Surgeons instituted its department of Dental surgery, laid down a curriculum to be followed by students, and after examination granted a diploma of fitness to practise, under the title of Licentiate in Dental Surgery. In this curriculum certain subjects embraced in the general medical education, but scarcely needful to the Dentist, such as midwifery, forensic medicine and botany, &c., were left out, and in their stead special Dental subjects were introduced, leaving the time and cost of the profession strictly unaltered. The wisdom of this course is shown in the fact that the Dental School formed to meet the requirements of the curriculum has from year to year increased the number of its students, who at the present time nearly approach one hundred; and that the education meets the necessities of the Dental surgeon is proved by its voluntary acceptance by those whose purpose it is to follow Dental practice. For it must not be forgotten that the legal powers given to the colleges in the Dental charter are permissive only; hence the education is offered, not enforced. The value of the diploma has been steadily advanced by extending the educational opportunities, by gradually increasing the strictness of the examination, and by the addition of written to the *vivâ voce* questions. And the preliminary examination in arts now required of the medical student before entering upon professional studies will also be required of the Dental student from October, 1877.

The licentiateship is the qualification needed by the Dental surgeon, for no other indicates that the possessor is practically acquainted with Dental surgery; and surely, if we would gain our living by Dental practice, we must before all else be skilful Dentists. I use the word *Dentist* because the public will call us Dentists do what we will, just as they call the ophthalmic surgeon an oculist; and if we suffer, it will not be by the name but by our want of worth.

I do not for one moment argue against the Dental student taking a general medical qualification; on the contrary, I would urge the student whose means and time will allow, to take the membership or fellowship of the College of Surgeons or Physicians, and I would further advise him to take the B.A. of one or other of our Universities. But I do protest against the student making a general qualification stand in the stead, and take the place, of the special one if he proposes to gain his living by our specialty.

Dental surgery some years back suffered greatly from one or other of two conditions. The practitioner had at the outset only a general medical education, or, in many cases, he possessed no education at all, and the suffering is not yet at an end; but the wise course taken by the College of Surgeons has already very greatly reduced the evil, and will doubtless ere long, to the exclusion of the incompetent, provide the public with a very efficient race of practitioners.

It is reasonably hoped that the permissive education, the success of which no well-informed person can deny, will become compulsory, and that a distinctive line will be drawn between the competent and incompetent practitioner, recognisable by the public.

The membership and licentiateship jointly may be said to meet the case, but they involve a higher and more costly education than either taken singly, and it is not reasonable to expect that all Dental students will be prepared to meet the demands of the double qualification. For such, and they will probably form the majority, at least for some time to come, the licentiateship will suffice, as being the educational equivalent of the single qualification in the general practitioner.

There has been much loose talk about the status of the Dental practitioner. We had better work more and talk less upon the education of ourselves and our fellows. The Legislature can neither give nor withhold social status. The public will settle the question, and our position will be determined by our individual and collective professional and general culture, by our professional usefulness and scholarly attainments.

I remain, Sir, yours truly,
JOHN TOMES.

June 14th, 1876.

PERMANENT CLOSURE OF THE JAWS.

(*From the 'Medical Times and Gazette.'*)

THE treatment of permanent closure of the jaws from contracted cicatrices, necrosis, anchylosis, and other causes, has not received very much attention from surgeons generally. As such cases are not of very unfrequent occurrence, it will be interesting, no doubt, to some of our readers if we refer briefly to the treatment of those who are the unfortunate victims of this pitiable condition.

There have been two operations proposed and practised. Professor Rizzoli, of Bologna, conceived the idea of simply dividing the jaw; he made no external incision whatever, but completed the section of the bone from the mouth by means of powerful forceps. In this way he operated upon four patients; and at a later date M. Verneuil reported other cases which had also been operated upon in the manner suggested by Rizzoli.

Professor Esmarch's operation consisted in removing a piece of bone from in front of the contracted cicatrix, so as to establish a false joint anterior to the cause of occlusion. It necessitates an external incision, which, however, is a matter of no real importance, whilst it permits the use of the saw instead of the forceps for the purpose of dividing the bone, and thus does away with the risk of splintering. Dieffenbach had previously recommended nearly the same operation, and had tried, it but without any good results, as he endeavoured to make the false joint behind the contraction instead of in front of it. There is a third procedure, which has been adopted by Mr. Barnard Holt and Mr. Heath, in cases where cicatrices have existed on each side of the mouth. It consists in the division of the cicatrices from within the mouth, and then keeping the surfaces apart by means of shields properly adjusted to the teeth. These shields require to be constantly modified. The treatment is prolonged and tedious, whilst the operation is difficult and bloody; and the patient ought to be of an age at which he can give assistance to the surgeon and Dentist. Although in both Mr. Holt's and Mr. Heath's cases what were considered satisfactory results were obtained, this treatment is not one which is likely to be often followed, owing to the trouble it entails both upon the patient and the surgeon.

The operation which on the whole has proved most successful, and which is most frequently resorted to, is Esmarch's. It was first performed in this country by Mr. Mitchell Henry, M.P., when that gentleman was a member of the surgical staff of the Middlesex Hospital; subsequently Mr. Christopher Heath operated upon two cases with success.

We have now an opportunity of publishing the notes of four recent cases, three of which have occurred in London hospitals, and one at the Hôtel-Dieu, Paris. For the particulars of the last-named case we are indebted to Dr. Charnley, late Clinical Assistant of the Middlesex Hospital.

The London cases were of similar origin; two had followed on scarlatina, and one after measles. The Paris case comes under another category altogether; its exciting cause was a decayed tooth. Mr. Mac Cormac's and Mr. Lawson's patients had each suffered from necrosis of the jaw as well as sloughing of the cheek; in the former there was a bony lamella between the upper and lower jaws. Mr. Lawson had tried a milder treatment on his patient eighteen months before she was submitted to Esmarch's operation. It will be noticed that in his case eleven months have elapsed since the operation, and that, though for some length of time afterwards the result was perfectly satisfactory, quite recent reports prove that no great permanent good has been effected. In Mr. Mason's case—and, it is to be inferred, in M. Richet's also—there was firm anchylosis of the joint on one side but there had been no sloughing of the cheek, and no adhesion between the cheek and gums. The permanent result in their cases may possibly, therefore, prove more favorable. The three English surgeons removed a wedge of bone from the lower jaw. M. Richet seems simply to have divided the bone. The only course which seems likely to be followed by lasting success in cases of necrosis and sloughing is to remove a considerable piece, and better still, perhaps, the whole side of the lower jaw from the joint to just in front of the cicatrices.

Those who care to know more about this subject cannot do better than consult Mr. C. Heath's book on 'Injuries and Diseases of the Jaws,' or Esmarch's monograph.

ST. THOMAS'S HOSPITAL.

CASE 1.—*Fixation of lower jaw from sloughing of cheek and* *necrosis of jaw following scarlet fever—formation of artificial joint by removal of a piece of the lower jaw.*

(Under the care of Mr. MacCormac.)

Jane D—, æt. 17, had an attack of scarlet fever when four years old. Her health was much impaired, and necrosis of the lower jaw, abscesses, sloughing, and ulceration of the cheek followed, apparently as sequelæ of the attack. The cheek became adherent to the maxillæ, and the buccal pouch was completely obliterated, and so long as she can recollect she has been unable to open her mouth. She states that on two occasions in another London hospital the cheek was extensively separated by dissection from the jaws, and for a time some movement was the result; but after a short space the immobility was as great as previously.

On admission to St. Thomas's Hospital, under Mr. Mac Cormac's care, March 14th, 1876, her condition was pitiable; the lower jaw was fast fixed against the upper, so much so that the incisor teeth actually overlapped. There was, on careful examination, a slight amount of lateral motion observed. She could readily swallow fluid food, but any solid nourishment could only be introduced into the mouth by a process of rubbing or "grating" the morsel against the teeth, when some portion would pass through the interstices. She suffered much from toothache. The left cheek was throughout adherent as far as the angle of the mouth, which was deformed by the cicatrices due to the former loss of substance.

Mr. Mac Cormac decided to perform Esmarch's operation for the formation of a false joint, believing the absence of mobility to depend on the cicatricial contraction in the cheek, and that if the jaw were divided in front of this, the mandibular joint on the uninjured side would be free to act, and the patient be placed in a condition of comparative comfort.

Accordingly, a free incision was made horizontally through the cheek from the angle of the mouth to the anterior border of the masseter, and another down to the ramus of the jaw from the middle of the first incision. In this way the region involved was freely exposed, but some embarrassment occurred by reason of no interval being found between the jaws, and it was only then discovered that a thin lamella of new bone extended from the upper to the lower jaw.

A hole was made in this with the gouge, and a chain-saw passed around the bone, which was readily divided opposite the second præmolar. Then a piece of the jaw in front of this was excised, partly by means of the saw, and partly with cutting forceps, as far forwards as the canine tooth—a piece of quite half an inch in breadth being removed. The left half of the jaw became now freely movable, and could be opened quite widely. A considerable number of decayed teeth were then extracted (amongst them the molars), which had been pressed into a position at right angles to their normal direction. Some bleeding from the divided bone was checked by the application of perchloride of iron, and the wound united carefully by sutures—a piece of the lower lip, which was much larger than the upper, being turned up to form a new angle to the mouth. This facilitated the healing and improved the girl's appearance considerably. Three days later all the sutures had been removed, and the wound was healed by first intention except at one point. The progress to recovery of the patient after the operation was uninterrupted. She soon became able to eat solid food, and she can now masticate with ease and comfort. After eight weeks, during the greater part of which she simply remained in hospital to be under observation, she was sent to a convalescent home, having an excellent use and free movement of the left two thirds of the lower jaw.

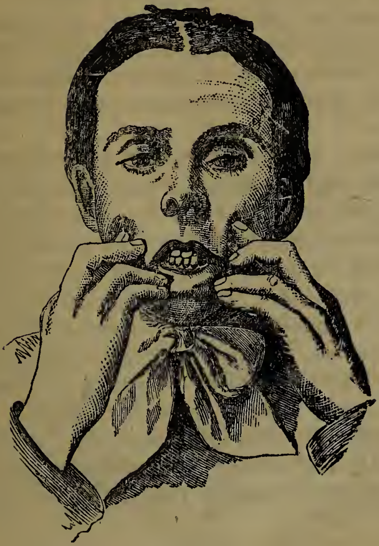
Case 2.—*Anchylosis of right temporo-maxillary articulation —Esmarch's operation—good result.*

(Under the care of Mr. Francis Mason.)

The patient was a young woman, aged twenty-nine, who was admitted into St. Thomas's Hospital under Mr. Mason's care, June 8, 1875. She stated that she was quite well until thirteen years previous to admission, when she had an attack of scarlatina. Abscesses formed in various parts of the body, and amongst others in the right temporo-maxillary region. She was also confined to her bed for two years with dropsy. Her recovery then became complete, with the exception that her lower jaw remained fixed.

At the time of admission the patient was in fair health, but had an anxious expression of countenance. Close to the temporo-maxillary joint of the right side there was a cicatrix, and the joint itself seemed somewhat thickened. The teeth of the upper and lower jaw were quite close together, and it was impossible to insert even a piece of writing-paper between them; there was just a perceptible movement, but that was all. She took her food (finely minced) through an aperture occasioned by the loss of the crown of the left lower canine tooth, as the accompanying illustration (Fig. 1) shows.

FIG. 1.

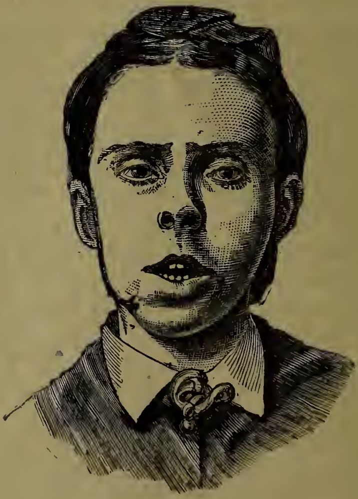


On June 30th ether was administered, and Mr. Mason tried to separate the jaws with gags of various shapes; but beyond displacing several teeth, made no impression whatever on the joint itself. Mr. Mason then proceeded to make a horizontal incision, nearly two inches in length, in the soft parts under the body of the jaw of the right side, and, reaching the bone, separated the soft tissues and got into the mouth between the teeth and cheek. The incision commenced at a point under the chin, about opposite the angle of the mouth, and extended backwards nearly to the masseter muscle, without involving the facial artery. A narrow saw was now applied vertically in the space between the first and second bicuspid teeth, and the bone divided with the help of the cutting forceps. After this section the left side of the jaw was found to be freely movable, but the right side was firmly fixed. Mr. Mason then removed with the saw about half an inch from the right or anchylosed side. There was no hæmorrhage worthy of remark, and the wound was closed with silk sutures. The sequel of the case may be told in a few words. The day following the operation she was able to open the jaw herself, without assistance, for about three quarters of an inch, and on July 10th could open it nearly an inch.

On the 12th the wound in the skin had all but healed, and the opinions of Mr. Elliott and Mr. Ranger, the surgeon-dentists to the hospital, were taken as to her wearing some small apparatus to keep the jaw in good position. Unluckily, however, the patient got an attack of erysipelas, and thus the local treatment was necessarily suspended for awhile. When she had recovered from the erysipelas, she expressed a wish to leave the hospital, and there was difficulty in inducing her to remain.

On August 4th, Mr. Mason being desirous of ascertaining the exact amount of movement, had her placed under the influence of ether, and found that the left temporo-maxillary joint was fairly free, and that the jaws could be separated to the extent of three quarters of an inch. The right joint was quite firmly anchylosed. The left side of the jaw was tilted a little over to the opposite side, yet she could masticate her food well. Any mechanical apparatus appeared to be of doubtful value, and the idea of adopting it was abandoned. She left the hospital sooner than Mr. Mason wished; but altogether, considering the drawback of the attack of erysipelas, the result was better than could have been anticipated. Fig. 2 shows pretty accurately the patient's condition about two months after the operation. It may be added that the teeth which were unavoidably displaced by the gags, in attempting to open the jaws previously to the division of the bone, were returned to their sockets, and became as firmly fixed as ever.

Fig. 2.



MIDDLESEX HOSPITAL.

Complete closure of the lower maxilla from a dense cicatrix within the mouth—removal of a wedge of the lower maxilla.

(Under the care of Mr. LAWSON.)

Emily H—, æt. 10, was admitted into Regent ward in January, 1874, on account of a complete closure of the jaws, caused by a dense cicatrix within the mouth, which firmly tied the cheek to the upper and lower maxillæ of the left sides, and bound the lower and upper maxillæ so closely together that the mouth could not be opened to the smallest degree. The history of the patient was as follows:—When four years old she had measles, and afterwards suffered severely from boils. She then had sores within the mouth, and apparently an attack of cancrum oris, which produced sloughing of the mucous membrane of the cheek and of the corresponding portion of the lower maxilla, with some exfoliation of bone. From this the child recovered, but, in the cicatrisation which followed, the cheek became firmly adherent to the upper and lower maxillæ, causing a closure of the mouth. The child was fed with chopped and sopped food, which was pushed through the spaces of the teeth. When second dentition commenced she enjoyed a period of comparative comfort, as, from the increased size of the spaces caused by the loss of the first teeth, she was able to push the food more readily into her mouth; but when the new teeth had filled up the gaps the inconvenience became so great that her mother brought her to the hospital for relief.

In January, 1874, she was first admitted into the Middlesex Hospital, and Mr. Lawson freely divided the whole of the cicatrices within the mouth, completely detaching the cheek from the upper and lower maxillæ. The jaws could then be opened with ease. The relief, however, was very transient, for as cicatrisation proceeded the tendency to close again was very great, and it was only by the ingenuity of Mr. Bruce, Mr. Lawson's dresser, that fixity of the jaws was prevented. He made a series of compressed dried pine-wood wedges, which were introduced between the teeth, and these swelling kept the jaws apart. They were always worn except while eating. The wound healed, and the patient when she left the hospital could open her mouth sufficiently wide to eat her food. She was to continue the use of the wedges. About nine or ten weeks after leaving the hospital the use of the wood wedges became so painful, owing to the great contraction of the cicatrices, that she was obliged to give them up, and very shortly afterwards the mouth was as firmly closed as before the operation.

July 2nd, 1875.—The patient was again admitted into the hospital with both jaws firmly bound together. She could not separate the lower maxilla from the upper to the smallest degree.

14th.—Ether having been administered, Mr. Lawson made an incision along the lower border of the lower maxilla, commencing at the point where the cicatrix terminated, and removed with a small saw a wedge of bone immediately anterior to the cicatrix, about half an inch long in the upper, and three quarters of an inch long in the lower portion. The wound was then closed with a suture. After this operation the patient gained immediate relief, and was able to open the mouth on the right side sufficiently wide to admit a sixpence placed edgewise between the teeth.

August 3rd.—The patient left the hospital with the wound healed, and much pleased with the result.

The benefit, however, has been only transient, for on making inquiries recently concerning the child, Mr. Lawson was informed that the jaws are again closed as completely as before.

Mr. Lawson remarked that after the experience of this case, should a similar one again come under his care, he should pursue a somewhat different course. He would remove a longer wedge of bone anterior to the cicatrix, and then call in the aid of the Dentist to make a plate to fit the inside of the teeth, so as to keep the divided ends of the jaw apart during the process of cicatrisation. The plate should be afterwards provided with a central hinge, which would allow of an up-and-down movement, to admit of mastication, and should be worn by the patient until a false joint was completely established.

Hotel Dieu, Paris.

Case 4.—*Decayed wisdom tooth—fixation of jaw—Formation of artificial joint by division of lower jaw—Removal of tooth by gouging.*

(Under the care of M. Richet.)

Feb. 8th, 1876.—A man æt. 30, presented himself with the following story:—A few months before, he had toothache in the lower wisdom tooth of the left side. He went to a Dentist, who tried to remove the tooth, but after pulling his jaw about a good deal, failed. He is now unable to separate his jaws, and therefore unable to eat, and is in consequence much emaciated. The jaws are so closely approximated that a fine chisel can with difficulty be introduced. There is a swelling on the left side over the lower half of the masseter, and this muscle can be felt tightly contracted. M. Richet raised a square flap over the position of insertion of the masseter and separated this muscle from the bone. The patient could then open his mouth a little more than before, but not wide enough to be of much use. The jaw was therefore divided by a chain-saw just behind the position of the wisdom tooth. After this was done the patient was able to open his mouth freely. After the division of the jaw, by means of a little exploratory gouging the remains of the wisdom tooth were found.

18th.—Patient progressing favorably. He can open his mouth four fifths of an inch. To employ active and passive movement daily.

19th.—He can eat bread and meat, and walks about the ward. His general health is good. The discharge from the wound escapes externally.

The Dental Student's Note-Book. Edited by Oakley Coles. London, George Butcher, 4, Crane Court, Fleet Street, E.C., 1876.

We cordially welcome this useful little book, which cannot but prove of great value to those preparing for the Dental diploma. Let no one of our friends who were in practice prior to 1859, and are admissible for examination for the diploma without having to pass through the curriculum, now say they have no time to study; with the aid of this well-arranged little work they could soon prepare themselves. We do not mean that they should be content to master its pages only, but take it as a guide to more extended reading, and as a trusty test of their knowledge. We hope there will soon be a second edition needed; and if one is issued we would suggest the addition of questions, and some system of reference, after the paragraphs, to the authors that the student may refer to, for more extended information on each point. Our interest in the work is increased by the modesty with which it is put forth, Mr. Coles in the preface reminding his readers, that he makes no pretence to authorship in connection with it, but has simply collected from many sources, that which he found useful to his pupils, and in publishing these notes acts only as an editor of other men's writings and investigations. In fact, the notes were originally prepared for his class, and simply printed in slips for private use.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

MONTHLY MEETING, MONDAY, JUNE 6TH, 1876.

CHARLES VASEY, Esq., President, in the Chair.

The PRESIDENT announced the presentation to the Library, by Mr. Moon, of two volumes of Mr. Bryant's 'Practice of Surgery.' He also intimated that, owing to extreme pressure of business, Mr. Murie would be unable to be present to read his paper. He hoped, however, that the evening would be profitably spent in the making of casual communications.

Mr. WEISS called attention to a case of deposition of tartar on the buccal side of a block. It was about 1¼ inch in length, and ⅝ of an inch in thickness; what made it somewhat interesting and remarkable was that there were clear indications, on the grinding surface of the block, that this side of the mouth had been freely used for mastication, and what made it still more remarkable was that it caused disfigurement of the face by thrusting out the cheek without the patient being aware of it. On the other side there was little or no deposition, nor was there any deposit to any extent in the lower jaw. He also brought before the notice of the Society a flask which he had constructed, and which he regarded as a combination of all the better parts of other flasks. It had been vulcanised over 1400 times, and been in constant use for seven years. There was a shaft or rod on each side and, unlike other flasks, the upper half went down readily, steadily, and perfectly perpendicularly, which prevented the teeth being broken upon the closing of the flask, resulting from the two halves not going into their true position. The destructible portion of the flask were little attachments that held the upper half to the lower half. In this there was no great novelty; but they were placed in such a position that a wedge was driven thoroughly home, and the upper half was brought on to the lower and the flask was held perfectly in its place. He thought that in this contrivance they had a friend that could always be relied upon for doing its work. The wedges were quite distinct from the flask, and constituted the only part of the apparatus that might be considered at all destructible.

Dr. SANGER said he was reminded, by the case mentioned by Mr. Weiss, of a case he had many years ago of a woman

60 years of age, who was subject to rheumatic gout, and who had concretions, considerably larger than those mentioned, all round the teeth of the lower jaw. Whether the rheumatic gout diathesis had anything to do with these concretions he did not know, but he imagined they had. He supposed it was from the salivary gland that the concretions were formed inside the mouth. When the salivary glands exuded there was a fluid something like the gouty concretions formed in the joints. He remembered once opening a sub-lingual gland and extracting a piece of hard concretion similar to that exhibited on the tooth.

The President mentioned the case of a woman who came to the hospital for treatment, where there was a large concretion formed in the mouth; but the patient and her friends supposed it was the outgrowth of a bone.

Mr. Turner said that many cases of accumulation of tartar had been met with, but mostly when the patient had lost the opposing teeth. Referring to Mr. Weiss's case, he thought it was remarkable to see such an accumulation of tartar in that part of the mouth which had been freely used for mastication, and also to see how the tartar, which was deposited in a soft state, could make room for itself. If such a mass were put into the mouth against the buccinator muscle with any soft material, the muscular pressure would be very soon dissipated; but the saliva accumulated so gradually that it literally asserted its power over the tone of the buccinator muscle and drove the muscle before it and entirely distorted it. It was a remarkable instance of how gradually applied pressure would make way in a soft material against a harder and stronger material. They were much indebted to Mr. Weiss for calling attention to the flask he had constructed. A flask which would enable the operator to hold the teeth and the model in the same position before he commenced to pack in the rubber would be most valuable, and that was the kind of flask that had been offered by Mr. Brunton, who had had before the profession for about two years a contour flask. Messrs. Ash had told him that they could not sell those flasks at all; but he was astonished that anybody using them should hesitate to say that for general purposes they were the best introduced to the profession.

Mr. Stocken mentioned the case of a patient through whose sub-lingual gland a concretion about ½ an inch in length, and ⅜ths of an inch in width passed every third year.

Mr. Lyons said he had a case of a lady, 22 years of age, whose four front permanent incisors became loosened, and the alveolus disappeared.

Mr. Sewill thought there might be some relation between the deposition of tartar and rheumatic gout diathesis, but it could hardly be that indicated by Dr. Sanger. He was of opinion that gouty concretions of any kind were not analogous to salivary deposit. The tartar was more akin to the concretions of the bladder, which fastened round a foreign body. There was not, as far as he knew, any special concretion of tartar from the glands, and, therefore, it was not in any direct relation to those chalk stones which were found in gout. In all cases of dyspepsia or a vitiated state of secretion, patients with gouty or rheumatic diathesis had chronic inflammation of the gums and vitiated secretion of the mouth, which tended to larger formation of tartar, which, besides being made of earthy matter, contained foreign particles, such as epithelium, scales, and other matters found in the mouth.

In answer to the President, Mr. Lyons said that the teeth of the young lady he had instanced had been gradually loosening for about three years, and they had to be removed on account of their being so loose.

Mr. Canton made the following communications:

A lady, æt. 21, had a fall during an attack of scarlatina; one front tooth was loose before she fell, but four years after two other front teeth became so loose that the three were extracted and put on to a gold plate; the teeth and fangs of nearly every tooth are quite exposed, and all more or less loose. She came to me to have the left upper first bicuspid, which had dropped out, added to the plate. The four lower incisors which I have here are to all appearances healthy.

Last July (six years since the upper front teeth were extracted) the four lower incisors had to be extracted on account of extreme looseness, and also a decayed right lower first molar; the second molar also very loose. This brings the lady to the age of thirty-one years, wearing three upper and five lower artificial teeth. She is one of a very large family, no other members of which suffer in the same way; and her father, who is a medical man, can in no way account for the state of her mouth, as she has always been very healthy and had no illness but the scarlatina mentioned. Her gums are to all appearances perfectly healthy, but rapidly receding.

The second case is as follows, as written for me by the patient:—"I first noticed my teeth getting loose about the year 1870; three years after that a Dentist scraped them. I tried several things to fasten them, but all to no purpose. My gums used to be very full, a dark red colour, and swell sometimes. I was subject to gumboils. For years I noticed a thick matter on the teeth. About two years ago the discharge from the gums became more, but not so thick; now it is all about my mouth in the morning, before it was confined to the teeth only. I never had a serious illness in my life, and always have had good health with the exception of cold, headaches, and a very low nervous feeling. My age is 26. I cannot in any way account for my teeth becoming loose." I saw this patient for the first time on August 9th last year and then extracted the two upper centrals and one lateral incisor, which were perfectly loose, and every other tooth in her head was in a similar condition to the first case; gums appeared quite healthy. I could get no history of a fall, or blow, or illness, or, in fact, anything to account for the state of her mouth. I have the teeth extracted with me and will pass them round. I should like to hear the opinions of the members on these cases.

They are the only two cases I have ever met with, or even heard of, in which the teeth have begun to loosen and drop out perfectly sound between the ages of 20 and 21.

In the first case there is the history of a fall, which possibly may have given rise to the loosening, but I should have expected to find some discoloration of the teeth, which is generally the result of a blow or fall, as well as the loosening; but this is not so in either of these cases; the teeth are a perfectly good colour; and also after a blow or fall one would hardly expect every tooth in the head to loosen.

Mr. Sewill said he had a case of entire absorption of the root of a permanent tooth which he had watched for seven or eight years. It had become so loose that it was removed by the finger nail; but there was a case of injury which had occurred many years previously. He had several lady patients about the age mentioned by Mr. Canton under his care at present who were losing their teeth in the way that had been described. The teeth often became so troublesome that they had to be removed and an artificial piece substituted. In some of these cases the general health might be suspected; but in most of them there was very little history to account for the local disease. With regard to treatment, the plan he adopted was to take a perfect model of the mouth with liquid plaster of Paris, and to make a vulcanite frame to extend all round the teeth so as to protect the loose teeth from the bite and from change of temperature.

Mr. Hutchinson said that about three months ago, he had a case similar to the one related by Mr. Canton, in which, without any apparent cause, loosening of the whole of the teeth in the upper and lower jaws occurred. The gums were tumoured, red, and inflamed, and round the necks of all the teeth there was a deposition of peculiarly hard and scaly tartar. He was quite convinced from experience of this and other cases that in a tooth, the root of which suddenly became conical, loosening was much more likely to occur than when they were of the more common wide, round shape.

Mr. Oakley Coles said he had a similar case of a girl, 23 years of age, who was a worker in artificial wax flowers. The gums were very much inflamed at the margins and the teeth were loose, and he was under the impression that they were very wide at the cutting edge and of the shape mentioned by Mr. Hutchinson. The tartar was of a dark colour, exceedingly hard, and passed at some distance from the neck of the tooth towards the alveolar cavity. In that case he held the teeth firm with the thumb and finger, removed as much tartar as he could with a fine scaling instrument, then scarified the gums, especially at the margins, after which he applied chlorate of potash ground up in glycerine, a large amount of which was absorbed into the gums and passed round into the inner surface of the gum as it connected itself with the teeth. None of the teeth were lost, and the patient got better. He did not know whether this condition arose from the nature of her occupation; but there was no history of syphilis and the girl was strong in every respect.

Mr. Henry thought that Mr. Sewill had scarcely given the glands credit for performing a prominent part in supplying the earthy salts. He could not help feeling that the glands themselves were great contributors to the amount of the deposit; and the concretions as they came from the gland must be charged more or less with the salts, governed by certain existing conditions of the patient.

Mr. Sewill wished to explain that what he meant was that the tartar was derived from the saliva as the saliva was derived from the glands. There was no special secretion of stony matter as one would find in gouty diathesis where chalk stones were found deposited in the joints.

Mr. C. S. Tomes said he had certain models which had been sent by Dr. Moffat of Edinburgh, which were interesting as showing how a very unpromising looking mouth had been brought into a tolerably satisfactory form by the extraction of the tooth, and by the patient learning to put a pretty constant pressure on one of the teeth at the fang. He also called attention to some unique arrangements in the development and succession of the teeth of some common English vipers, the peculiarity of the whole matter being that there were two complete series of developing organs devoted to the purpose of keeping one organ in an active functional condition, there being sometimes as many as ten or twelve poisonous fangs in course of formation.

The PRESIDENT said he had a model of a cleft palate in which the incisor tooth was not only turned round but was bent upwards to a horizontal position sticking out in a very awkward and frightful looking manner. Such cases were generally treated at a very early age but this woman was over 30, and the hare-lip had not been operated upon. Cases of cleft palate were generally imagined to originate with the non-union of the inter-maxillary with the maxillary contents of the central and the lateral incisors, and he found the lateral frequently on one side of the gap. But in this case the supernumerary tooth and the lateral incisor were on another side of the gap from what it would have been if the gap depended on non-union of the inter-maxillary bone with the two maxillary bones. The division generally seemed to be between the lateral and central incisors.

Mr. SEWILL said that some months ago the teeth of a girl, of 14 were broken into fragments by a blow from a stone. The mouth was very badly adapted for artificial teeth after the front teeth had been extracted, and he thought it better to close the gaps in front by pressing the teeth together and pressing them in before asking the patient to wear artificial teeth. A plate was prepared and pressed into the teeth and the patient went into the country for some months under the care of a dental practitioner, but after she returned it was found she only wore the plate for a short time. There was very little deformity in the front of the mouth, but if she had been induced to wear the plate continuously the improvement would have been greater. He had no doubt the teeth would still improve from the natural growth of the jaw.

Mr. OAKLEY COLES thought that in many cases it might be impossible to postpone the operation for harelip, but where it could be postponed for a time it would be very desirable, as it would preserve the relative position of the upper and lower jaw much more perfectly than if the operation was done earlier in life, and would make a much more symmetrical arch for operation or for the application of an artificial palate later on in life.

The PRESIDENT said he was afraid that deferring the operation of uniting the lips became so serious in the matter of articulation that very few in the present day would consent to its being deferred. The difficulty, too, in feeding a young child made it very desirable to have the lip united as early as possible.

Some questions having been answered by Mr. Tomes in connection with the communication he had made, the meeting was adjourned to November.

Miscellanea.

PROTEST

FROM

MEMBERS OF THE STAFF OF THE DENTAL HOSPITAL OF LONDON.

To the Editor of the 'British Journal of Dental Science.'

SIR,—The accompanying protest was sent to the editor of the 'Lancet,' who refused to publish it. May I beg you to insert it in your next number.

Your obedient servant,
THOMAS UNDERWOOD.

To the Editor of the 'Lancet.'

SIR,—We the undersigned Dental surgeons and lecturers at the Dental Hospital of London beg to protest against an inference conveyed in an editorial article in your issue of May the 27th; the inference to which we refer is that the holders of the diploma of licentiates in Dental surgery are unqualified practitioners. The Dental diploma was instituted by the College of Surgeons, the highest surgical corporation in the kingdom, and is held by them to be the only sufficient evidence of capability to practise our specialty. In defence of the interests of the largely increasing number of students who qualify for this diploma we emphatically protest against such an idea; and would also refer to the fact that the views of the writer are evidently not shared by all the members of the new association, some of whom are on the staff of our special board:

JOHN TOMES.
C. S. TOMES.
GEORGE GREGSON.
ALFRED HILL.
R. HEPBURN.
T. H. G. HARDING.
W. P. BARTLETT.
A. G. MEDWIN.
J. S. TURNER.
CHARLES JAMES FOX.
THOMAS UNDERWOOD.
H. MOON.

AN APPEAL.

AN old practitioner who in former years rendered a literary service to the profession which has had some little influence in its progress for the last twenty years, has we regret to find been reduced, from illness and temporary blindness, to great distress. It is believed that a sum of £20 or £30 would enable him to obtain a small practice. Any gentlemen who should feel inclined to contribute to this good purpose will oblige by communicating with Mr. Edwin Saunders, 13A, George Street, Hanover Square, who has kindly undertaken to act as Treasurer to the Fund, or with the Editor, who will be ready to reply to any inquiries addressed to him at 11, New Burlington Street.

THE DENTAL HOSPITAL OF DUBLIN.

We are glad to hear that this new institution is being gradually but surely established, and has received cordial support from several of our influential London practitioners. We understand that it is the intention of the staff to hold an Inaugural Dinner the last week in August, and that several eminent London and provincial Dentists have already signified their intention of being present. Communications on the subject may for the present be addressed to the Hon. Sec., pro tem, John O'Duffy, Esq., 5, Gardiners Row, Dublin.

THE A 1 QUICK-SETTING, STRAW-COLOURED MODELLING COMPOSITION.

We have received and tried a small packet of this composition. It seems much allied to those of our old friends Stent and Hinds, but not so agreeable to sight, taste, or smell. It does not, however, seem to require so great a heat, and sets quicker. If it were sold in cakes instead of small broken pieces, and were given a shorter name, it would be more convenient.

A NEW DENTAL CHAIR.

We have been shown the model of an operating chair of, so far as we are aware, perfectly novel construction and which, we think, from its simplicity and efficiency is likely to remedy the long-felt want of a good chair at a moderate cost. It has a light and elegant appearance, and its movements are entirely regulated by levers. The back can be set at any angle from the perpendicular almost to the recumbent, one singular feature being that, as the back is lowered (or thrown backwards), the seat moves forwards, thus keeping the weight of the patient in the centre, and avoiding any tilting. The seat can be raised or lowered, and kept always horizontal whatever the angle of the back may be. The arms can be raised, lowered, turned, or removed at pleasure. The head-rest can be set at any angle or moved to the extreme right or left of the chair or any intermediate position, and when raised to its full, increases the height of the back of the chair about nine or ten inches.

MR. ALFRED HILL'S HISTORY OF THE DENTAL PROFESSION FOR THE LAST TWENTY YEARS.

We are pleased to hear that this work upon which Mr. Hill has been so long and so zealously engaged will shortly be ready for publication. We would advise those who desire to possess a copy to make early application to Mr. Hill, as we believe only a limited number will be published. We feel sure it will amply repay for perusal, and every one who takes an interest in the welfare of his profession should possess a copy.

NOTES AND QUERIES.

11. I want to borrow or buy a copy of the "Forceps" published some thirty years ago. If borrowed the greatest care will be taken of it, and it will be returned in a fortnight.—F. Richardson, 10, London Street, Derby.

ODONTO-CHIRURGICAL SOCIETY.

Instead of meeting this month as usual the Council of this Society have resolved to hold the next meeting in Glasgow, early in September, during the sitting of the British Association there, when a paper by Mr. Bridgeman, of Norwich, is promised. Due notice will be given as to date and place of meeting.

APPOINTMENT.

W. Merson, Esq., to be Dental Surgeon to the Boscombe, Pokesdown, and Springbourne Provident Infirmary.

A public Gas Testing Station has been opened in the Town Hall, Dumfries, fitted up with the most modern apparatus now in use by scientific men engaged in the analysis of coal gas. At a recent meeting of the Town Council, Mr. Wood, Surgeon Dentist, was unanimously appointed Burgh Gas Analyst. Mr. Wood, who is a member of the Town Council and Police Commission, accepted the appointment, declining to receive any remuneration for his services in connection therewith.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

At the above examination the following gentlemen were found qualified, and admitted Licentiates in Dental Surgery, viz.:

George Wm. Bateman; Stephen Birt; Richard Brown; Thomas Scales Carter; Alfred Wm. Turber; George Herbert Marriott; Henry Biging Mason; Thomas Albert Roberts; Lewis Wm. Stevens; Felix Henri Weiss; Wm. Francis Willis; Moreton Alfred Smale, Horace John Lloyd Farebrother.

OBITUARY.

We deeply regret to have to announce the death, on the 30th inst., at Granton Lodge, Granton, N.B., of George Ogilvy Roberts, L.R.C.P.E., and L.R.C.S.E., aged 34, eldest surviving son of Dr. W. A. Roberts, L.D.S.R.C.S.E., 47, Queen Street, Edinburgh.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

To the Editor of the 'British Journal of Dental Science.'

Sir,—In the May number of your Journal Mr. Hare, of Limerick, relates a case of unprofessional conduct on the part of an eminent London Dentist towards his provincial brethren; such instances, I regret to say, are not uncommon, and I could relate several similar cases that have come within my own knowledge.

On the other hand, I could furnish many instances of a totally different character, and could name more than one eminent London practitioner whose conduct towards his qualified provincial brethren is all that could be desired.

A lady has just presented me with the card of a firm of celebrated Dentists practising in Old Burlington Street. The said Dentists having informed her that she might, with the utmost confidence, place both herself and family in my hands. Such highly professional conduct on the part of London Dentists, I am happy to say, is not rare, yet is worthy of being made a note of.

Mr. Hare suggests that we provincials should publish the names of our London brethren when found guilty of unprofessional conduct, a proceeding that might do good, providing we were all in a position to *cast stones.*

Kendal; I am, yours, &c.,
May 10th, 1876. J. Ottley Atkinson.

To the Editor of the 'British Journal of Dental Science.'

Sir,—The *ad captandum* style which Mr. Andrew Wilson, in his official capacity of Honorary Secretary to the Odonto-Chirurgical Society, has thought proper to adopt in his epistolary effort, in answer to my communication in your May issue, is not very becoming in the mouth-piece, as it were, of a scientific association.

Why I should be "virtuously indignant" I am at a loss to see. There being no question of infringed morality, virtuous feeling need not be imputed to me, and certainly as little need indignation, seeing that I am in no way connected with the Odonto-Chirurgical Society, and know nothing of that august body nor yet of its doings beyond what can be gleaned from an occasional glance at its proceedings as reported.

I addressed you "in the interests of the Dental profession," my communication being intended as a remonstrance against the admission of unsuitable matter in the proceedings of a scientific society connected therewith, and I take it on me to remark that, had that society and its honorary secretary done wisely, they would, to use the homely phrase of their countrymen, have "jouked and let the jaw gae bye."

In answer to Mr. A. Wilson's explanation I would remark that the sooner the Odonto-Chirurgical Society appoints a censorship to overlook and prepare the material for publication the better for its reputation as a grave and learned body, seeing that he on whom that duty at present devolves fails to perceive the impropriety of giving publicity to matter, the appearance of which in print constitutes nothing short of a compromise of the dignity of our profession.

In saying this I shall gladly plead guilty to hypercriticism, when Mr. A. Wilson points out a similar departure from propriety in the Odontological Society's reported proceedings, or in those of any scientific association whatsoever of admitted standing.

I may add that the attempt on his part to shift on Editorial shoulders the onus of giving publicity to such matter is most ungenerous. Enough that valuable space has been so wasted without the indorsation of Editorial approval of such twaddle being implied by the sacrifice.

I have hitherto abstained from instancing that which I referred to, but shall no longer refrain from doing so should I be driven to a rejoinder.

I am, &c.,
C. M.

To the Editor of the 'British Journal of Dental Science.'

DEAR SIR,—Has your attention been called to the last new tactics of the quacks of our profession, viz. that of attaching the letters M.D. to their names; of course, it means Mechanical Dentist; but does not this sort of thing mislead the public and seriously injure the practice of legitimate Dentists?

Is it not possible for some of our leaders to get an article into one of the daily papers, exposing the quackery of these men, and so make it next to impossible for unprincipled people to deceive the public. Until something very definite is done to put a stop to quackery I am much afraid our profession will never attain to the position it deserves—viz. that of equality with any other special branch of surgery.

Legislation prohibiting men from practising, who do not possess the L.D.S., seems the thing needful; but in the meantime cannot something be done to put a partial stop to quackery?

Some people may object to my premise that every one must have the L.D.S., but for my part whether men possess the M.D. Lond., F.R.C.S., or M.R.C.S., I should like to see the L.D.S. a *sine quâ non* for all people who practise Dentistry; not to take the L.D.S., to my mind, is an insult to the College of Surgeons, since they created the Diploma at the urgent request of Dentists. I am, &c., MORTON A. SMALE.

ANSWERS TO CORRESPONDENTS.

"A. H."—Shall have very great pleasure in complying with your request.

"A. B. C."—Published in the 'British Journal of Dental Science' for June 1875.

"INQUIRER."—You shall receive every attention in due course.

"J. H. H."—Many thanks. Why not write a paper on the subject?

G. F. HARE.—Politeness requires that the "last word" should be left to the lady, therefore we must decline any further correspondence on this case. The whole matter evidently arises from some misunderstanding, as it so happens that the lady was, we believe, *advised* by her London Dentist to consult a local practitioner.

NOTICE.—We are compelled from pressure on our space to hold over many interesting communications till our next issue.

British Journal of Dental Science.

No. 242. LONDON, AUGUST, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London Ophthalmic Hospital, and to the Central London Ophthalmic Hospital.

(*Continued from p.* 355.)

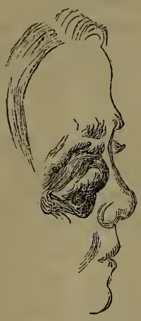
In cases of abscess of the antrum, when the matter is confined, unless interrupted by treatment, the pus makes its way out either through the cheek below the orbit, through the palate, through the nostril or the anterior wall of the antrum, or, lastly, through the socket of a decayed tooth in the alveolar process.

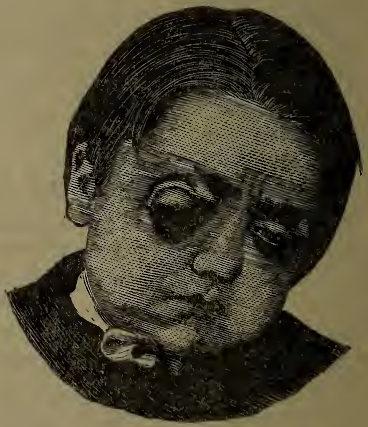
In some instances, before giving way, the cheek becomes enormously distended, and all the structures attenuated, so that the abscess forms a mere membranous bag, the bone having been completely absorbed over a large extent of its surface. An instance of this kind is recorded by Sir Wm. Fergusson, in whose work on 'Surgery' is a woodcut representing the face of an aged woman, the left side of whose face is disfigured by a falling in of all the tissues; but at the upper part of the cheek there is an oblique bony ridge, the remains of the bony shell of the antrum, which had become distended by the contained fluid. In the Anatomical Museum of King's College the condition of the antrum in this case after death (specimen marked $^{1209}_{3}$) is shown. The integuments have been dissected off, and the anterior of the antrum exposed. The aperture in the bony walls, which was covered in by membrane only, is at least two inches in diameter. There is no communication between the antrum and the nose or mouth.

It sometimes happens that the abscess in the antrum is associated with very extensive disease of the bones of the base of the skull, and in such instances meningitis and death have occurred. In the following case of scrofulous abscess of the orbit, which came under my observation in 1866, in conjunction with Mr. E. C. Hulme, the antrum was found after death to be full of fœtid pus, and the floor of the orbit was carious. It was probable, however, that the disease of the antrum was only secondary to the original mischief in the orbit in this case, which terminated in meningitis and death.

W. B—, æt. 10, first came under my notice in the latter part of the year 1866. He was a patient of my late colleague, Mr. Hulme, under whose care he had been for some years. The disease was attributed by his mother to a blow received three years before; but it is quite evident, from the scars about the face and elsewhere, that he is a very scrofulous boy, and that in all probability the disease in the orbit was of a scrofulous nature. The right eyeball is seen to be enormously protruded, the lids turned inside out, and there are sinuses at various points round the margin of the orbit, from which a thin discharge constantly escapes.

When I first saw him, he suffered occasionally from pain of a severe kind, and had intermittent attacks of inflammation in the protruded parts, but no head symptoms had yet shown themselves.





About the end of March, 1867, there was occasional delirium and screaming, and in May the left eye began to protrude, and very soon this eye was entirely destroyed. The right eye, though first affected, retained some little vision within a very short time of the patient's death, which occurred on August 5th, 1869, the latter few weeks being passed in a state of semi-coma. I assisted Mr. Hulme in a post-mortem examination of the head, when we found there was a quantity of thick, curdy, yellow tubercle, or inspissated pus, lying between the dura mater and the sphenoid bone of the right side, and extending up to the squamous portion of the temporal bone on the same side across the sella turcica and into both orbits.

There was caries of the floor of the right orbit, and an opening into the right antrum, which itself communicated with the mouth by another opening in the alveolar ridge. The antrum, therefore, on this side formed an abscess full of fœtid pus.

The membranes of the anterior and middle lobes of the brain showed slight traces of recent inflammation.

The state of the antrum and floor of the orbit was probably a late complication of the primary disease, and it was, of course, impossible to have guessed at the amount of mischief that was going on within the cranium until a very late period in the case.

The thick deposit of new bone seen upon the bones of the base of the skull shows clearly that inflammatory thickening had been going on in this region for a considerable time; but it by no means follows that this morbid process could have been stopped or averted by any surgical interference.

Diagnosis.—The symptoms, in the early stages of the malady, are somewhat indefinite and unreliable. There is a dull aching pain of the cheek and jaw, and this pain is referred to the whole of the jaw and the floor of the orbit, and not to the alveolar ridge only, as in ordinary periostitis of the alveolus, preceding gumboil, or that associated with carious teeth. There is also some swelling of the soft parts, and tenderness spread over the whole antral region, and not confined to one spot or region of the jaw, nor to the region of the lachrymal sac. The nostril of the side affected is drier than usual, there is heat of the parts, but no superficial redness. Nearly always one tooth, a bicuspid or a molar of the affected side, is decayed and painful, or diseased in some less obvious way.

Later on, the distortion of the surrounding parts indicates the region whence the enlargement has started, but in the early stages, unless some part of the bony walls has become much attenuated, the nature of the enlargement is less obvious, and, in some cases, the distension of the sinus goes on for years so slowly and painlessly, and with so complete an absence of febrile disturbance, that the idea of abscess is not prominently suggested. Hence it has, on more than one occasion, been supposed that a tumour of the upper jaw was present, and the most careful and experienced surgeons have been led into an error of diagnosis on this point. It is *said* that Gensoul of Lyons once cut down upon the cheek, with the intention of removing the upper jaw, when the case was not one of tumour, but of purulent accumulation within the antrum; but I am unable to find any authentic record of this case, but the two following cases will serve to illustrate the point under consideration.

M. Dubois' Case of Simple Accumulation of Mucus in the Antrum, simulating Tumour of the Upper Jaw. (*Mackenzie on 'Diseases of the Eye,'* p. 69.)

The patient, when a boy of seven years of age, was observed by his parents to have a hard round tumour, about the size of a filbert, near the root of the nasal process of the left upper maxillary bone. It gave no pain, and did not appear to be increasing. A blow, however, which he received about a year after by a fall, excited this tumour to grow, which it did by almost insensible degrees till he was fifteen. It then began to enlarge more evidently, and to cause slight pain. By the time he was eighteen it was so considerable in size as to raise the floor of the orbit, so that the eye was pressed upwards and appeared less than the other, on account of the limited motion of the lids. The palate was depressed so that it formed a swelling of about the size of an egg divided longitudinally; the nostril was almost completely closed, and the nose was twisted to the right. The cheek was prominent; and the skin below the lower eyelid, and covering the upper part of the tumour, was of a livid colour and seemed ready to give way. The upper lid was pushed upwards, and the whole length of the gums on the left side had advanced beyond the level of those of the right. Breathing, speech, mastication, and sleep were impeded.

Sabatier, Pelletan, and Boyer being called in to consultation, the *unanimous opinion* appears to have been that it was a case of *fungus* of the *maxillary sinus* requiring an operation. So much thinned was the bone behind the upper lip, that Dubois felt there a degree of fluctuation, and proceeded to open the sinus at that place, expecting merely to give issue to a small quantity of ichorous fluid, and then to encounter the fungous tumour. The opening, however, allowed a very considerable quantity of a ropy substance to escape, similar to what is found in ranula. The probe being passed into the opening entered evidently a large cavity quite free of any kind of fungous or polypous growth. It is probable that the opening made at this first operation, if kept from closing, would have served for the complete cure of the disease; but Dubois seems to have thought differently, and proceeded five days afterwards to extract three teeth and to remove the corresponding portion of the alveolar process. This enabled him, on placing the patient in a favorable light, to see the whole interior of the dilated sinus, at the upper part of which, and near to the edge of the orbit, he discovered a canine tooth, which he extracted. After this the cavity gradually shrunk; the tumour of the cheek, that of the palate, and the displacement of the nose, continued for some time, but after seventeen months no deformity existed.

See also a case under the care of Mr. Henry Smith, 'British Medical Journal,' March 2nd, 1867, recorded as follows:

A Case of Abscess of the Antrum, simulating Malignant Tumour of the Upper Jaw.

A middle-aged woman had a large swelling in the right cheek, which was pronounced, after examination by Sir W. Fergusson and Mr. Smith, to be probably due to the development of a malignant tumour in the antrum Highmori. There being no enlargement of the glands under the jaw, the case *was thought to be a favorable one for* *excision of the upper jaw.* Fortunately, however, while the patient was in the hospital he had an attack of erysipelas of the face, which lasted between two and three weeks; and, at the end of this time, the swelling in the cheek, which had increased considerably, diminished suddenly on the bursting of an abscess beneath the under eyelid. This materially altered the view taken of the case, and then *all idea of removing the upper jaw was abandoned.* As the swelling in the cheek, however, did not disappear entirely, after another three weeks had elapsed, Mr. Smith performed the usual operation for evacuating any fluid matter pent up within the antrum. The second molar tooth, the fangs of which correspond to the floor of the cavity, was extracted, and a large triangular trocar was pushed up its socket. No pus came away, however; and, after nipping away a portion of the alveolar ridge, so as to be able to pass a finger into the antrum, the cause of the mischief was found to be necrosis of a portion of the bony wall of the antrum, which part was consequently removed.

The importance of arriving at a certain conclusion as to the presence of pus in the antrum under these circumstances, before proceeding to any operation for the removal of a tumour, cannot be too strongly insisted on, and it should therefore be the rule before operating always to perforate the cavity, either through the socket of a molar tooth, or through some expanded part of the anterior wall, or through the outer wall of the nasal fossa. This proceeding has, on two or three occasions, saved the surgeon from the discredit of removing the upper jaw for an abscess of the antrum.

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 358.)

Reflex Affections caused by Diseased Teeth.

The Dental Surgeon is so frequently called upon to determine the cause of affections that may have their origin in a diseased condition of the teeth that any cases calculated to throw light upon the more obscure symptoms exhibited by this class of patients are greatly to be valued.

The commonest form of reflex nerve affection due to dental irritation perhaps is that where the irritating tooth is unsuspected by the patient, who believes the cause of pain to be in quite another part of the mouth, and frequently in the opposite jaw. We can all of us record many such cases, still I am tempted to relate the particulars of one illustrating this form of irritation in a very marked degree.

A gentleman called upon me one Sunday morning, and after apologising for his intruding on this day, stated that he was suffering indescribable torture from a lower bicuspid. I examined the tooth and assured him that there was nothing the matter with it, but a tooth in the upper jaw was much diseased, and was evidently the cause of his suffering. He would not agree with me, saying that he supposed he must be the better judge of the seat and the cause of pain. I answered that that statement might be questioned; that nothing was commoner than for the sense of pain to be in quite a different part from the cause of it, and assured him that nothing would induce me to remove a perfectly healthy tooth, and one I felt thoroughly convinced that had never given him a moment's uneasiness. His answer was certainly a novel one. He lamented that his own Dentist lived out of town, for he felt convinced that *he* would have extracted the lower tooth if he had requested him to do so. In vain I assured him the upper tooth was the cause of all the mischief; however, I was not listened to and he left. In about an hour, however, the same gentleman returned, in the first place to apologise for his seeming rudeness, and then to request that I would take out the upper tooth I had alluded to as being diseased. "For," said he, exhibiting the vacant space, "I have had the lower extracted, and my pain continues as bad as ever."

It is hardly necessary to add that the extraction of the upper tooth afforded my patient immediate relief, and that he went away rejoicing.

Cases similar to the one detailed are continually being met with, and particularly in hospital practice where so many mouths are found in a sadly neglected state.

I. *Case of Deafness due to the Irritation of Diseased Stump.*—The particulars I am about now to relate demonstrate in a very marked manner the great necessity there is for attention to the state of the mouth while treating affections that might have their origin in a diseased condition of the dental organs.

Miss H—, æt. 60, was wearing a complete set of teeth,—complete as regards the upper jaw, a few teeth only were standing in the lower. There were no teeth or stumps apparent in the upper at all. She remained in London until the denture appeared to be in every way satisfactory, then returned to her native place, an obscure village in Yorkshire. She continued for more than two years perfectly comfortable, but at the end of that period was attacked by a mysterious wearing pain that extended all through the upper maxilla, and was more particularly felt in the region of the ear on the right side. Knowing that she had no stumps or teeth in the upper jaw the pain somewhat surprised her. It continued altogether off and on for about three months, and then subsided. During this period she wrote me two letters, the one entering fully into the particulars of the pain, and the other at the end of a month informing me that by following the advice I had offered, and assisted by the local medical practitioner she usually consulted, the pain had gradually subsided, and that she was now comfortable again.

About three months after receiving the last letter this lady came up to town and visited me. She said she had been in London about three weeks, and the object of her visit was to consult a physician, as she had become exceedingly deaf in one ear. I believe the gentleman consulted was Mr. Partridge, of Spring Gardens, who particularly inquired as to the state of her teeth, but upon learning that she had lost them all in the upper jaw, and had only the four incisors and the canines standing in the lower, made no further allusion to these organs. Her reason for seeing me was simply that I might examine the work she was wearing (as she was about to return to Yorkshire), so that I might assure her it was in perfect order; but I took advantage of her visit to make some inquiries regarding the pain she had had some months ago, and certainly the description of her sufferings pointed to exostosis, had any teeth or stumps been left in the maxilla. The pain had also been most severe on the right side, the side upon which she was suffering from deafness. I asked whether she had benefited by the treatment she had been under since her visit to London, but she said she could not perceive any great change in her condition.

First of all I had a look at the model of the mouth taken about three years ago, and certainly there was no indication of a stump in any part of the upper. The tuberosity at the end of the maxilla appeared to be somewhat larger on the right than on the left side, but in other respects the model presented an equally absorbed character throughout. I now removed the set and examined the mouth. The gum appeared to be slightly inflamed, and there was a growth on the right side clearly pointing to a change of form, and I could readily lift up a flap of hypertrophied gum extending for about half an inch at the extremity of the jaw. This I at once decided upon removing, and upon probing the spot afterwards, felt something very like the stump of a tooth in the region where the wisdom tooth might originally have been. I also perceived upon examining the gold plate she had been wearing that some hard substance had been pressing downwards, and had left a mark upon the surface of the plate. After some persuasion I got my patient to consent to an operation being performed, and I succeeded in extracting a very remarkable fang from the right side of the upper jaw. It was rather slender, conical in shape, and about half an inch in length. From the middle of the fang extending at right angles to the body of the stump was an offshoot of exostosed bone quite three eighths of an inch in length. The fang had evidently been part of a wisdom tooth, and I have every reason to believe that this tooth after being erupted underneath the plate had crumbled away and then been partly covered over by gum. There was no indication of either tooth or stump when the denture was originally made; of that I am convinced, and I have on more than one occasion seen the points of teeth present themselves after a plate has been worn in the mouth. In one instance I saw two supernumerary teeth and a deformed canine partly erupted in the palate.

The stump having been extracted the lady left me and returned to the country, and I thought no more about the case until, many months after, I had a professional visit from her sister, who informed me that from the moment the stump was extracted, my patient's hearing became gradually better and that in less than a month it was quite restored. She stated that they noticed a perceptible improvement from the time the operation was performed, although it never occurred to them that the extraction of the stump could have cured the deafness. As, however, the treatment adopted and continued for three weeks while in London, without any perceptible benefit, was of the simplest kind, I feel fully persuaded that the irritation solely resulted from the buried wisdom tooth or stump, and that its extraction led to the cure of the patient.

II. *Perverted Sense of Smell from Diseased Stumps.*—The subject of the following remarks was one of my earliest patients. She came to London from the Cape, partly owing to the state of her health, and when I first saw her she was wearing a gold upper denture, of which two superior central incisors formed a part. She came merely for me to repair the work she had had previously constructed at the Cape, and nearly three years elapsed between her first and her second visits. On the second occasion she complained of 32
always having "the feeling of a disagreeable smell present to her;" I give the impression in her own words. It never

left her at any time, but was if anything worse at night time. I was aware that she had the stumps of the upper incisors in her head, but they appeared to be about as healthy as they could well be, after being covered up for so many years. She gave me a third visit about six months after the second. She came from some part of Scotland where she now resided. She called owing to a statement that had been made to her, and by which she was greatly alarmed. It was to the effect that she was suffering with cancer, and she believed that she had a slight discharge from the nose. One thing could not be disputed; the sense of a disagreeable fetor, always present to her, was now worse than ever, and at times her power of smell was so perverted that she could not distinguish one scent from another. I at once recommended the removal of the central stumps, but so reluctant was she to lose them, and so doubtful of their having anything to do with the inconvenience she was suffering from, that it was not until she had seen a Surgeon and been assured that she was *not* suffering from cancer, she listened to what I had to say.

Eventually the stumps were extracted, and all these disagreeable symptoms gradually disappeared; indeed the impression made upon my patient's mind was so favourable, that ultimately she had every other stump in her mouth removed, and has ever since advocated the extraction of all useless teeth and stumps—a practice that no experienced Dentist can ever find fault with.

ON ODONTALGIA AND NEURALGIA.

A paper read before the Dental Students' Society, March 13th, 1876.

By R. Birt, Esq.

(*Concluded from p.* 306.)

About the pathology of neuralgia there seems to be some difference of opinion. Trousseau says, that when a local pain gives rise to neuralgia that the spinal cord is influenced, and then through reflex action gives rise to neuralgia.

Dr. Anstie regards the posterior roots of the spinal cord as the real seat of neuralgia, and that the essential condition is atrophy.

Mr. Tomes says, that if such is the case that the central change is not enough to produce neuralgia after the cessation of the peripheral irritation. Seibold and Dubois state as the result of their investigations into the nature and causes of neuroma, that they rarely failed to trace the cases to the influence of the rheumatic diathesis, or that patients had suffered more or less from rheumatism prior to suffering from neuralgia. Some say that tic douloureux occurring in a person of rheumatic diathesis alternates with the pain in the fibrous tissues. Others agree with this view so far as to say that it is a very common state of things but not universal, and say they find no treatment so generally successful as that based on the theory of a rheumatic affection of the nerve or its neurilemma; this theory being that inflammatory action causing effusion into the sheath of a nerve produces pressure on the nerve itself, and gives rise to pain.

But the chief interest to us lies in the fact that neuralgia alternates with odontalgia in the same patient, that as yet no strict pathological condition of the nerves seems necessary to give rise to severe neuralgia, that in multitudes of cases neuralgia has been distinctly traced to the teeth, and in the same way permanent relief has been given by proper treatment of the teeth, either extracting them or destroying the pulp as the case may be. That it does arise from other causes no one can doubt, but even in these cases we ought, if the state of the mouth requires it, to carry out a proper system of local treatment. When we consider the delicate and exceedingly beautiful structure the Dental pulp, its large vascular and nervous supply, the fact of its being enclosed on bony walls liable to a great number of abnormal conditions, and the consequent liability of the pulp to irritation, to a great extent the similar condition of the Dental periosteum, the various functions and large distribution and many communications of the fifth nerve the physiology of perverted, reflected, radiated, and diffused sensations, we shall not deem it hard to find reasons for the many disordered functions and diseases that arise from Dental irritation.

In making a diagnosis and investigating the cause of an obscure case of odontalgia, very great care and patience are often necessary. In the first place it will be well to ascertain how long the symptom has existed, and the circumstance under which it was first experienced, as if it followed a blow on a tooth or a cold, or came on after a tooth was stopped, &c.,

It may then be well to make a thorough investigation of the mouth, either beginning at the tooth the patient refers the pain to, or, what is better, begin at the posterior tooth on one side of the mouth in either jaw and make a careful systematic search all round that jaw to the posterior tooth on the other side, and then proceed to the other jaw and investigate that in the same manner, very careful search being made in the difficult places between the approximate surfaces of teeth and the distal surfaces of molars, &c.; to effect this a fine probe, mouth-mirror, and small pellet of wool held in the plugging forceps are necessary; any carious cavity that may thus be discovered will require further attention. Further investigation must be made by percussing the teeth with the handle of your mouth-mirror or anything else that may be deemed more suitable and any tender teeth carefully noted. It will also be necessary to find out if the teeth are sensitive to sensations of heat or cold, this may be done by asking the question or applying a warm or cold steel instrument to the teeth. Manipulating the teeth with the fingers is often a very delicate test for sensitive teeth, getting the patient to bite on some hard substance, as the handle of the mirror, is also a very delicate test for sensitive teeth that cannot be discovered in other ways. In investigating a carious cavity it is our object to discover the state of the pulp, having cleared the cavity of foreign matters, a piece of wool pressed in will often tell us whether this be hypersensitive or exposed, the fact of the wool being tainted with the peculiar phosphaic odour on removal is a sure diagnostic symptom of its being exposed. Warm or cold water syringed into a cavity shows that it is sensitive if it gives rise to pain; probing a cavity with a fine pointed probe is also necessary though often a very painful operation, but that is just what we want to discover. If the exposure be visible, sight will aid us a great deal in telling its condition; indeed, it is of first importance to get a most perfect sight of the whole cavity, but this is often extremely difficult with some patients. If the pulp appear shrunk or quite insensitive to these tests, the prognosis is still unfavorable as regards the condition of the pulp, and most likely either by the presence of the phosphaic odour or the tenderness of the tooth on pressure we shall have discovered this before unless the carious cavity be small or the pulp cavity be obliterated by secondary dentine. There are other conditions of the teeth which must claim our attention as whether they are eroded, abraded, or fractured, and if stoppings are present what condition they are in, whether they project and irritate the gum, or whether they have become imperfect or have been left too high, or if they are the cause of pain through conduction of heat or cold, or if they confine pus in the pulp cavity or press on the pulp in any way. To ascertain, the seat and character of pain is also very useful as I have endeavoured to show. It will be necessary to note what teeth are present and what absent, and ascertain if absent if they were ever erupted, or how they where lost.

The condition of the gums must be taken into account, whether they be inflamed, swollen, or ulcerated, thickened at their margins, or of a deeper colour in that situation, whether they are separated from the teeth, receded, or, on the contrary, exhibit increase in growth at any part, as between teeth that have been filed, &c.; and lastly, they are useful, too, as indications of the condition of the vascular system, being pale in anæmic and deep red on plethora, &c., and often exhibit a red margin and general pale gum in some forms of cachexia. The saliva must also claim due attention as to quantity and quality, whether it is acid, neutral, or alkaline; whether that form of stringy mucus is present in the mouth and around the teeth which is often seen in general cachexia and dyspepsia, or whether tartar is present around the teeth, or whether pus will exude between the teeth and gums.

The tongue is also important to us; whether it be dry or moist will indicate to a great extent the state of the secreting organs generally, as well as those in the mouth; thus, a dry tongue will indicate either an inflammatory or febrile state of the system; its colour, like that of the gums, the general state of the vascular system; it is furred in almost all severe diseases, and we get a creamy white deposit on it in the first stages of fever, in catarrh, in quinsy, and inflammatory states generally, and we often see a dry brown fur in local irritation affecting only that side of the tongue on which the diseased teeth lie.

In the debilitated and nervous states of the system and in dyspepsia we get a characteristic tongue.

The condition of outward parts must also occupy our attention, whether they are swollen or distorted, or have lost their sensory or motor power; this latter is not so easy as it first appears in the case of a bearded face.

And we should also take particular note of the state of the tonsils, as they are largely symptomatic of the state of the system.

We shall thus get a great insight in the condition of the health, but in some cases it is of the utmost importance that every diagnostic symptom be taken into account. Thus, in general periostitis the history of the case is very important to us as well as the present condition of the patient and conditions of the part. In cases of supposed or real neuralgia the history of the case, the family history of the patient as regards health, as well as the conditions of the teeth and system at the time, so that the origin of the symptom and the morbid state which gives rise to it may be clearly defined; whether it is irritation or inflammation and its results, or whether it is purely sympathetic or neuralgic, and in case of its being the latter what is the particular state that gives rise to it; whether the patient be gouty, rheumatic, anæmic, debilitated, dyspeptic, or whether they have been subject to an unhealthy or pestitential climate. In the case of females, whether they are hysterical or suffer from any of the disorders peculiar to their sex. All these considerations must enter into the proper treatment of odontalgia and neuralgia, as to remove a state of health that induces the symptoms is removing the cause in a far greater degree than extracting a serviceable tooth. But if we are convinced that the tooth is unserviceable, do not let us (with the few well-known exceptions) hesitate in the other line of treatment, that is, extract, the sooner the better.

As regards the treatment of Dental neuralgia there are three chief indications, as in any other form. First, to remove the source of irritation if it can be discovered; for this reason it is of first importance, if we are able to demonstrate that any lesion of the teeth is the exciting cause, to extract, with the one exception, that if the lesion be chronic inflammation of the pulp, the destruction and complete removal of the latter may be sufficient. And it is well in cases of supposed idiopathic neuralgia to clear the mouth of all diseased stumps and teeth, as it is sometimes impossible to say what state a fang may be in as long as it remains *in situ*.

The second indication will be to alleviate pain; there are several remedies that are of use for this purpose; of these, perhaps, the best is quinine, given in single large doses, which may be conveniently proceeded by a saline purgative. The dose should be from gr. x to xxx of the sulphate of quinine dissolved in a little dilute sulphuric acid and freely diluted.

Tinct. Gelseminum may also be of use given in doses from ♏xv to ♏xx in an ounce of Aqua Anethi, and, if necessary, the dose should be repeated any time after an interval of two hours, and, if necessary, a third or fourth dose may thus be given. This remedy, which seems lately to have received some considerable notice from the medical profession, is the active principle of the common yellow jessamine. It has, I believe, been extensively used in America, and is stated to possess febrifuge, nervine, antispasmodic, and alterative properties. Its physiological action is to destroy the reflex power of the spinal cord in alone influencing the posterior roots. In large doses it produces tetanus, which is proceeded by a sort of paralysis; thus, the drug is proved to possess two agents, one a tetanising, one a paralysing, or, in other words, is both a stimulant and sedative to the spinal cord.

Croton chloral is another remedy often of use in these cases. It has the advantage of not producing sleepiness. The best vehicle for this drug is syrup of orange flowers, and it should be dissolved, first, in a little spirit, and then the other ingredients of the prescription added. Thus:

Croton Chloral Hydrate, grs. xxv.
Spirit Rect., ʒj.
Syrup of Orange Flowers, ʒvj.
Aqua ad, ℥iv.
A fourth part ever four hours.

Or the anodynes and narcotics may be useful, as Tinct. Belladonnæ ♏x to ♏xx, or Tinct. Opii ♏xx to ♏xxx, or a good dose of Chloral Hydrate, grs. xxv to xxx, &c. These should be given at bedtime. In some cases external applications are of service, as a belladonna and aconite liniment rubbed into the seat of pain till it tingles, or chloroform used as a liniment, or a few drops of chloroform cautiously inhaled. In cases arising from temporary debility or exhaustion a stimulant may give relief, as a glass or two of wine, or, what is often more effectual, some hot coffee or tea. In cases where there is determination of blood to the part the application of cold may give relief, as ice or a stream of cold water. In cases arising from acidity or flatus pot. bicarb. or soda bicarb. or magnesia with some carminative, as ginger, cinnamon, peppermint, &c., and the other remedies for dyspepsia.

The third indication will be to improve the patient's health, and, of course, the treatment must vary according to the state of the patient. If debilitated or anæmic iron, bark, and other tonics, &c. If plethoric an opposite course of treatment will be indicated. If dyspeptic, gouty, or rheumatic or hysterical the special treatment for these diseases, or, if it arises from malaria, a course of quinine. If following syphilis iodide of potassium, &c.

In those cases arising from sensitive dentine the application of nitrate of silver is the most effectual remedy, but as this stains the teeth its use is out of the question. Where such a stain would be apparent chloride of zinc used in the same way is often very effectual. The continued application of camphorated spirits of wine or coating the surface with a solution of mastic or some other spirit varnish is sometimes useful. In the case of a cavity the insertion of an oxychloride filling is the most effectual. In the case of an exposed pulp we must determine whether to destroy it or retain it. If a pulp has been the cause of much local pain, or if it is the cause of neuralgic pain, or if it is much receded, or if the patient is an unhealthy subject, I should destroy it, and for this purpose I think that arsenic gives the best results as it is the quickest and most sure agent we have for this purpose. It should in every case be directly applied to the surface of the pulp, and I have always found it most successful where the pulp has bled just previous to its application. It should remain in the cavity not longer than twenty-four hours. Where I decided to save the pulp I should clear away the softened dentine to a level with the surface of the pulp, then place a dossil of wool soaked in wood creasote into the cavity, and let it remain for a few minutes, then cap over the pulp with a piece of blotting-paper soaked in creasote, and then either put a mastic dressing over this or fill at once with oxychloride. Of these I find Gutten's far the least irritating. It should be used in a plastic condition to avoid pressure; the cavity should be washed out previous to this treatment with some ant. acid, and if it is possible to fill it it enhances the chance of success by excluding all air, and so preventing further suppuration, but it is needless to remark that in some cases the pulp requires repeated dressing for some days previous to filling.

If the creasote does not give relief a strong tincture of aconite or some morphia may be used with the creasote or carbolic acid or oil of thyme, but as yet I have been most successful with the creasote.

If the gum is at all inflamed or any symptoms of periostitis be present the gum should be freely scarified, or a leech applied, or it should be painted with the iodine or aconite. If the pain still continues some of the remedies I have mentioned may give relief, or a saline may be given in combination with a sedative and aperient.

The treatment of acute inflammation must be similar to that in the first stage of abscess, the application of carbolic acid to the pulp, salines and opium every four hours, and fomentations of poppy to the interior of the mouth; at the same time the gums should be deeply scarified or leeched and purgatives given. In general periostitis the same indication must be carried out more rigorously, and if there is any swelling about the jaw free incisions through the gums down to the bone, and any diseased teeth removed, and after the bowels have been cleared iodide of potassium in full doses combined with opium in case of much pain.

In cases of chronic periostitis the removal of the causes, as clearing a fang of the remains of a pulp, or removing tartar, a leech applied to the gum, and a saline purgative ordered, or if the gums are much swollen or inflamed they may be freely scarified and finely powdered tannin rubbed in, and afterwards the use of an astringent gargle, which should either contain tannin, bark, kram arin, &c.; and if they are separated from the teeth the use of chloride of zinc or nitrate of silver; afterwards the fang must be continually dressed till it is quite sweet, and then finally filled.

SUCCESSFUL REPLANTATION OF AN UPPER CENTRAL INCISOR.

By J. Wood, Esq.

On the 14th October, 1875, I received a call from a gentleman resident in the country, some nine miles from here, bringing with him his son, a boy about eight years of age. Whilst playing in a room with some other children on the previous evening he had been accidentally thrown down, and his mouth coming into rather violent contact with the floor, an upper central incisor was knocked completely out. The father of the boy at once picked the tooth up, wiped and replaced it, and early on the following day brought him to me. I found considerable swelling and inflammation of the gums, and, of course, the tooth completely loose and protruding from the socket, so as to bring the cutting edge something like a quarter of an inch below the line of the neighbouring incisor. Carefully pushing the tooth up into its place, and by means of a bent plugging instrument holding it firmly *in sitû*, an impression of the mouth was taken with the Godiva composition. From the model so obtained a plate was struck up, a cap being fitted so as to embrace the loose tooth and keep it steadily in position. When placed in the mouth the plate fitted admirably, and being secured to the adjoining teeth in the usual way, was as steady as could be desired.

With some directions as to treatment for the reduction of the inflammation, the patient was dismissed, with instructions to visit me from time to time, so that I might watch the progress of the case.

After subduing the local mischief the tooth gradually became firm in its socket, the wearing of the plate being discontinued after having been in use about a couple of months. The result in this case has been entirely satisfactory; a valuable incisor has been saved, and continues to remain as firm and healthy looking as any of the adjoining teeth.

Dumfries; 24th July, 1876.

PARTIAL CLOSURE OF JAW FROM INFLAMMATION OF THE FANG OF AN UPPER WISDOM TOOTH.

By Morton A. Smale, Esq., L.D.S.

On the 14th October, 1875, J. B— came to me telling me she could not open her mouth wider than would just admit my first finger. She was thirty-six years of age, and upon my inquiring if she remembered cutting her wisdom teeth she said yes, for it was a year after she was married, and they gave her some little trouble. That was fourteen years ago. I looked round the mouth carefully to see if either of the lower wisdom teeth were decayed, and using what little pressure I was able tried to see if they were sensitive to the touch, but they were not; in touching the right lower wisdom my finger pressed against the upper one too and she then said, "Ah! it is that upper one." I was still doubtful; she had complained of the upper one at first, but when I found the second molar in the upper jaw on the same side sensitive to pressure, also I felt convinced the closure must be caused by the wisdom tooth.

On the next day I removed the upper wisdom, and in two days she was able to open and close her mouth quite easily, and is now quite well. I removed the tooth with a pair of upper wisdom forceps made with the same curve that Mr. Coleman's stump forceps have. When removed the fang was inflamed, but as my patient wanted the tooth I could not open it to see the cause. There was plenty of room in the jaw for the tooth.

HOW TO IMPROVE THE COLOUR OF OLD AMALGAM PLUGS.

All amalgam plugs which I have examined, whatever their composition, lose after a few days, the face put on them with the burnisher. This occurs to a comparatively small extent when the plugs are made hard, and burnished; but in every case, if examined under a microscope of moderate power, an imperfect crystallisation will be seen. This surface is peculiarly sensitive to the action of discolouring agents, and if a specimen is taken and one half of the surface scraped, polished, and burnished, the latter half will be found to retain its colour and polish in reagents which make the natural surface completely black. I have kept a polished surface of this kind for two years without a trace of tarnish although suspended and freely exposed to the action of the air, &c., in the workshop, an unpolished surface becoming a dull grey in the same time. The proper treatment of every amalgam plug where surface discoloration is objectionable is, a few days or weeks after its insertion, to scrape, polish with cane and pumice, and afterwards burnish the face. If plugs of amalgams which are known to discolour badly are treated in this way, a great improvement will be found in their appearance. The trouble is very little; an average of two or three minutes spent on each plug will be found sufficient.—Thos. Fletcher.

Mechanical Dentistry.

ON CELLULOID.

Abstract of a paper read before the American Dental Convention at Long Branch, August 12th, 1875.

By Dr. R. Finley Hunt, of Washington, D. C.

(Reprinted from the 'Pennsylvania Journal.')

Celluloid, as its name (most judiciously chosen) implies, is a form or condition of cellulose or celluline. These terms are used in the same sense by different writers on chemistry, and, so used, designate that solid, insoluble substance which is found, in greater or less proportion, in connection with lignin and with albuminous and other matter throughout the vegetable kingdom, and forms the walls of the cells of woods and vegetables.

For the purposes of our profession those fibrous vegetables have been taken which contain the greatest proportion of cellulose. Cotton was used at first, but hemp was found to be better, and is now alone used.

The precise process used by the Celluloid Manufacturing Company to convert hemp into celluloid is not known to your essayist, but it will be sufficient at this time to give the general treatment and properties of substances applied in effecting this conversion.

The first step to be taken is to separate the cellulose from its associated substances as found in nature. This is an operation of more or less trouble, as the cellulose is more or less associated with other substances. In the case of cotton it is very simple, as that fibre is composed almost entirely of cellulose of a certain quality. With hemp it is less simple; but with it the process is substantially the same as is required for its conversion into pulp for the manufacture of paper. The cellulose having been segregated from its associated substances, is subjected to treatment with nitric acid by which it is converted into nitro-cellulose. Great care is required in this process to produce the proper and best results, as there are three grades or chemical combinations of nitrogen (or its peroxide) with cellulose, viz. mononitrocellulose, dinitrocellulose, and trinitrocellulose. The first and third of these are insoluble in ether and alcohol, and the latter possesses the property of being highly explosive. The second is called by some chemists pyroxyline. It is soluble in ether, or ether and alcohol, and in that condition of solution is known as collodion. It may be remarked here that the terms pyroxyline, collodion, and xyloidine have not yet received the strict chemical definition that is required by pure or exact science.

The dinitrocellulose or pyroxyline is the chemical compound that is used for the production of celluloid by the addition to it of gum camphor, both being in a finely divided state, and first mixed mechanically. Thus mixed they are subjected to heat and pressure, when a chemical combination seems to take place, resulting in a homogeneous mass. This process is, I believe, called technically by the manufacturers "conversion."

It is well here to speak of the nature of camphor and its action in this and subsequent manipulations. In the combination above spoken of, the camphor has the peculiar property of softening the pyroxyline and rendering it plastic. At ordinary temperature, however, this property is almost entirely dormant; the application of heat is necessary to excite it to activity. It is, therefore, in a state of gum, a softener of pyroxyline, and not a solvent, as has been incorrectly stated by many, the writer of this included. But gum camphor is volatile, evaporating slowly at ordinary and more rapidly at higher temperatures. Therefore, camphor when exposed to the air or in contact with or inclosed by previous substances, is constantly evaporating more or less rapidly, according to the temperature. This evaporation of camphor proceeds even in its most intimate combination with pyroxyline, and, by the continued application of heat, can be so effectually expelled that no appreciable quantity remains, and the celluloid is thus separated into its former constituents, pyroxyline and camphor. It is not, however, either necessary or advisable to proceed so far in the final preparation of dental plates. It is not necessary, because a certain small portion of camphor left in the plate is not injurious, and it is not desirable, because there is a risk of rendering the material brittle in the effort to expel all the camphor.

Pyroxyline possesses the property of elasticity to a considerable degree, but very little of plasticity. Hence, if it is changed by pressure from one shape to another, it has, on the removal of the pressure, a tendency, from its elastic nature, to creep back to its former shape. Its combination with camphor takes away from it the property of elasticity, and in return gives it that of plasticity, in proportion to the quantity of camphor added. As stated above, the camphor can in turn be driven off by evaporation, thereby re-exchanging plasticity for elasticity. It is absolutely necessary to do this after the plate is moulded, and before removing the pressure, and it is called "seasoning," on account of its analogy to the process of seasoning wood, by driving off the natural juices.

This material, celluloid, almost devoid of elasticity, can be rendered sufficiently plastic by heat to be moulded by pressure into any form or shape we may desire, and while under pressure it can be rendered sufficiently elastic to prevent any subsequent change of shape, under ordinary circumstances of use.

From what has been said, its behaviour under manipulation, up to the time that the moulding has been completed, may be readily inferred. One important feature—and it should be borne in mind at all times—is that, though quite strong and tough, it has a delicate texture, a disposition, if we may use that term, that requires gentle treatment and coaxing, rather than rude force.

(*To be continued.*)

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From June 1st to June 30th, 1876.

Extractions	Children under 14	402
	Adults	693
Under Nitrous Oxide		182
Gold Stoppings		178
White Foil ditto		23
Plastic ditto		263
Irregularities of the Teeth treated mechanically		10
Miscellaneous Cases		183
Advice Cases		128
Total		2062

James Merson,
Dental House-Surgeon.

British Journal of Dental Science.

LONDON, AUGUST, 1876.

The movement that is now taking place in Dublin in favour of the establishment of a Dental Hospital is eminently worthy of attention and support, and although we are unable to accept the very cordial invitation we have received to attend the inaugural dinner of the new institution, it has our fullest sympathy, and we shall not fail to watch its progress with interest, and render it every support we can with our pen, so long as it continues to be conducted in the thoroughly professional spirit in which it has been commenced. We trust, moreover, that this movement in Dublin, which, we understand, has the active support of several prominent London Dentists, will assist in rousing attention generally, to the question of the advisability of establishing such institutions in the provinces, and will waken the dormant energies of the officers of those that already exist. The support of active London men to the Dublin institution shows that the theory we have before advanced is thoroughly appreciated, viz. that such institutions, properly conducted in an unselfish spirit, must tend to the general good of the profession, and can in no way be detrimental to the Dental Hospital of London, as some short-sighted individuals fear, but rather act as feeders to the parent institution, to which, indeed, they will owe their existence; for it is seeing the benefits that have accrued to the profession generally, through the working and teaching of that hospital, that is now gradually but surely winning men, to seek to extend to more remote localities, the advantages that are thereby conferred. And as the utility of similar local institutions is felt, the number of those who will seek the superior training which cannot but be found in the London Hospital, will increase, and the institution itself must necessarily benefit by the spirit of emulation which will surely arise; but whilst we shall be pleased to note the establishment of legitimate Dental hospitals with schools attached, at some of our chief centres, we most earnestly deprecate the encouragement of little petty dispensaries and sometimes so-called hospitals got up for the benefit of one individual Dentist, unsupported by colleagues practising his own specialty. We care not how imposing may be the array of medical officers, consulting surgeons, and consulting physicians, anæsthetists, committee, secretary, bankers, &c., as long as there is the name of one Dentist alone, such an institution is open to the suspicion of being got up for the glorification of that individual only, and of being nothing more than a private enterprise unworthy of support as a public charity, no matter how large and imposing may be the prospectus, how grandiloquent its phrases, nor how profuse it may be in its profession of what it is going to do. No Dentist who values his own self-respect, or who can command the support and esteem of his brother practitioners, would ever think of starting such a scheme; and we trust medical men will pause ere they commit themselves to its encouragement by lending the support of their names.

The founders of the Dental Hospital of Dublin have carefully avoided the error we have pointed out, therefore we cordially wish a long and prosperous life to this the first institution of its kind in Ireland, and from the very sincerity of our good wishes we cannot refrain from uttering a word of caution in the framing of its rules. There is a strong tendency now-a-days to make such institutions self-supporting to a certain degree, and although we are by no means prepared to condemn the system as regards general hospitals, though even there we see difficulties in the way, yet as regards Dental hospitals we see such grave objections to the system (though possibly consideration and tact may remove them) that we trust our Dublin friends will pause ere they commit themselves to it at the outset of their career, for it will be far easier to adopt it in future than to abandon it if once commenced. With this one word of caution, which we trust they will take in the friendly spirit in which it is given, we wish them every success in their inaugural dinner and future career.

Literary Notices and Selections.

Lancet, July 1st to July 29th, 1876.

In the issue for July 1st the following correspondence seems to indicate that medical men are dabbling in Dentistry with but little knowledge of what the merest tyro in the specialty is well acquainted with. We recommend the case to the consideration of the Society of Surgeons practising Dentistry.

CARBOLIC ACID IN TOOTHACHE.

To the Editor of the 'Lancet.'

Sir,—I am unaware of any account as to the value of this drug in cases where (there being, of course, no abscess) the decayed cavity of the tooth is exposed so as to be easily got at. I heard a gentleman at one of the London hospitals mention the same fact to-day, and his experience (personal chiefly) quite coincided with mine, which is both personal and from treating a large number of people, men and women.

Yours obediently,
W. H. T. Power.

To the Editor of the 'Lancet.'

Sir,—In your journal of last week appears a letter from Mr. W. H. T. Power, in which he states that he is unaware of any account as to the value of carbolic acid in toothache. I beg to state that I have been in the habit of employing it in such cases for the last five or six years where patients have strongly objected to extraction, and where there has been extensive caries. The most eligible way of applying it, in my opinion, is equal parts of Calvert's carbolic acid (liquefied by heat) and collodion. In the majority of instances which have come under my observation it has given almost instant relief. My impression was that the use of this drug was more extensively employed in such cases than Mr. Power's letter seems to convey.—Yours obediently,

EDWARD A. PIGGOTT.

Mr. Henry Smith in the number for July 15th reports the following cases of cleft palate under his care at King's College Hospital.

The following cases, which have been recently under treatment at this hospital, illustrate the great benefit that may be obtained, even in severe cases of cleft palate, by the adoption of Sir William Fergusson's admirable device of splitting the hard palate.

CASE 1.—E. J—, aged eight years, a miserably underfed boy, was sent into the hospital on September 11th, 1874. A harelip had been previously operated on. A cleft extended through the soft and hard palate, about one third of an inch wide; the alveolar ridges were entire, and the vomer was slightly attached to the right edge of the cleft. The soft palate was fleshy.

He was allowed to remain in the hospital to improve his health, and on the 19th Mr. Smith operated on the soft and hard palate after the method recommended by Sir William Fergusson, by dividing the levator palati muscles, paring the edges of the cleft, and prising the bones together, by splitting the hard palate on either side, and introducing sutures through openings made in the bone by an awl.

The boy got severe constitutional disturbance, and the hole reopened in a few days. He was allowed to remain in the hospital for another month, by the end of which period the mouth had got into a healthy condition, and the boy himself had greatly improved. The operation was repeated both on the soft and hard palate on November 17th. Excellent results took place, the entire palate, except a very small hole in the hand, firmly uniting in a few days.

CASE 2.—H. J—, aged nineteen, admitted September 16th, 1875, with cleft through the hard and soft palates extending to within a short distance of the alveolar ridge. It was very wide, and the soft parts were thin. The general health was but poor. The patient had previously consulted a surgeon to a metropolitan hospital, who refused to interfere, probably because Sir W. Fergussion's operation on the hard palate had not then been made known.

Mr. Henry Smith operated on September 20th, under chloroform. The levator palati muscles were divided; the hard palate split on either side, the bones prised together, and the parts united by sutures. Everything went on well;

perfect union took place, and the patient was discharged on October 19th, already improved in his speech.

Case 3.—B. B—, aged forty-eight, admitted into King's College Hospital April 22nd, 1876, with an enormous cleft extending all through the soft and hard palates, for which he had worn a cumbersome and expensive apparatus for many years. He was desirous to have a portion even of the opening closed if possible. Mr. Henry Smith determined to try to close the soft palate, but declined to interfere with the hard, on account of the man's age. Other surgeons had been consulted, and they all discountenanced any operation.

Mr. Henry Smith operated on April 29th, dividing the levator palati muscles and closing the soft palate. There was great hæmorrhage during the operation and considerable subsequent prostration, partly from the loss of blood and partly from the effects of the chloroform; but the patient soon rallied, and the parts took on healthy action. At that part of the gap where there was the greatest strain one of the stitches ulcerated, but the greater portion of the soft palate united in a satisfactory manner, so that the man could wear the simplest apparatus.

In the first two cases we have examples of the excellent results produced by the method proposed by Dieffenbach, and more recently adopted quite independently by Sir William Fergusson, of closing the hard palate by freely splitting the bone on each side, combined with the free division of the levator palati muscles.

The first case is especially interesting, as it shows that, although a complete failure may have taken place, the operation may be successfully undertaken a second time, even within a few weeks. As the two operations were performed by the same surgeon, it may be presumed that the same care was taken on both occasions; the failure was doubtless due, in great measure, to the weak state of the boy's health.

In the second case matters were not very encouraging for an operation; the cleft was very extensive, the soft parts were thin, and the patient was by no means in average health. The operation was, of necessity, long and exhausting, yet excellent results were obtained.

In the third case the chief element of interest is the age of the patient in connection with the operation; for it is here shown that even in a person nearly fifty an extensive gap in the soft palate may at least be closed after division of the levator palati muscles.

From the 'Lancet' of the 29th we republish the following:

THE TREATMENT OF CLEFT PALATE.

To the Editor of the 'Lancet.'

SIR,—I have had so many courteous and friendly inquiries from Continental as well as English surgeons, respecting the treatment of cleft palate by the application of strong acid, alone, to which you kindly referred in 'the Mirror' of May 6th, 1876, that I shall consider it a favour, and it will save trouble, if you will permit me to explain in a few words the *modus operandi* I am in the habit of adopting.

I first produce a raw surface by carefully applying with a stick—*not a glass rod*—the acid. nitric. of sp. gr. 1·500, and in a few days afterwards I use in the same way the acid nitric. sp. gr. 1·420 (Ph. Brit.) about once or twice a week to the part, but especially to the fork of the cleft. I have had no bad symptom in any case, and although it is too early for me to lay before the profession the results of my experience, I believe there are numerous cases, in infants for example, and in others who dread an operation, in which this practice may be carried out; but of course it is not universally applicable. I may add that I have been induced to try this method from observing the singular success that follows the application of nitric acid in cases of cleft palate in which, after operation, the wound has partially opened. I have had recently, at St. Thomas's Hospital, two such cases, which, but for this method of treatment persistently employed, would have required a second operation.

Whilst I am on this subject perhaps you will allow me to say that Dieffenbach's operation (or that introdnced into this country by Sir Wm. Fergusson) is a very easy proceeding if practised in the following manner, the plan I myself prefer:—Ether or chloroform having been administered, and the mouth kept open with a gag, I first pare the mucous membrane, if possible, in one piece, to be sure that a continuous raw surface is produced. The anæsthetic effectually relaxes the muscles of the palate, so that they do not act spasmodically, and in paring the edge there is very slight hæmorrhage. The bone is then divided; and, as in this step the bleeding is frequently very free, not to say profuse, I thoroughly plug each side with a piece of dry lint, which instantly arrests the hæmorrhage. I first tried this method some months ago, and the excellent effect of the practice was remarkably illustrated in a case in which I operated at St. Thomas's Hospital on Wednesday last. The remainder of the operation need not be referred to here. Instead, however, of dividing the muscles at the outset, which in many instances is attended by troublesome hæmorrhage, I find that their action is sufficiently suspended during the healing process by carrying the knife for a short distance in the soft palate in a line with the incision made in the hard palate. If necessary, a few fibres of the palato-glossus and the palato-pharyngeus may also be divided in front and behind the tonsil.

I quite concur with Sir William Fergusson that in many cases the sides of the bony palate may be kept in apposition by lint alone, without the aid of sutures, and I now either leave the lint that has been used to arrest the hæmorrhage, or replace it by another piece of more suitable size.

It appears to me that the difficulties of staphyloraphy arise chiefly from the hæmorrhage which hampers the surgeon. Make the operation comparatively bloodless, as it is if performed in the manner above described,—and it is one of the simplest in surgery.

Your obedient servant,
Francis Mason.

The following by Dr. J. Anderson is from the same number:

ACUTE LARYNGITIS FROM LODGMENT OF SOLID NITRATE OF SILVER IN PHARYNX; TRACHEOTOMY; DEATH.

To the Editor of the 'Lancet.'

Sir,—Mrs. S—, æt. 62, on the 6th of May, about 11 p.m., just before going to bed, swallowed what she supposed to be an antibilious pill. She immediately fancied it had stuck in her throat. From time to time she tried to get rid of it by drinking a little water, which, however, had no effect. She soon felt a burning sensation in her throat, which increased rapidly. It was not till nearly three hours after that it was discovered that a small piece of caustic had been taken by mistake for the pill. Immediately this was known the usual antidotes were given, and for the next four days while she lived I saw her several times a day, and Dr. Cock, of Queen's Road, also saw her frequently in my absence.

Next morning, May 7th, the throat was much swollen, and before evening the swelling had increased rapidly, extending from the chin to the sternum; the burning sensation in the throat continued; the breathing became difficult; and inability to swallow even a teaspoonful of liquid, the attempt causing sudden fits of coughing, the fluid apparently entering the larynx, and being at once ejected. There was acute pain at the upper part of the pharynx, but more severe on the left side, considerable œdema of the neck, fauces injected, and salivation most profuse. No tenderness complained of in the region of the stomach. Pulse 100; respiration 35; temperature normal.—11 p.m.: Breathing much more difficult; can only speak in a whisper; pulse weak, rapid; a crisis evidently impending. My friend Dr. Cock, who visited her at this hour, opened the trachea. This was done under chloroform, and afterwards artificial respiration resorted to for a few minutes; the blood flowing from the wound, which previously was almost black, soon became red, and the pulse improved considerably.

On the morning after the operation I saw her at 7 a.m., and found her breathing easily; had slept nearly two hours; little salivation, but a considerable quantity of mucus escaping through the tube; still complete inability to swallow, every attempt made with the same result of instant ejection through the tube. Enemata given every two or three hours, consisting of beef tea, broth, milk, with small quantities of brandy and sherry. In the course of this day she slept at intervals, and said she felt comfortable, but weak.

May 9th.—7 a.m.: Slept but little.—11 a.m.: Had an enema of castor oil, as the rectum felt loaded. This acted freely; afterwards the nutritive enemata were continued. Pulse 100; respiration 30; temperature 98·6°.—11 p.m.: Cough troublesome, and continued ejection of mucus; feels weak, restless, and anxious for sleep. Had half a grain of morphia in the enema.

10th.—7 a.m.: Slept five hours, and expresses herself as much better; swelling of neck quite gone.—9.30 a.m.: Continued inability to swallow; ice relieves thirst, but the melted water is obliged to be returned. At this time, most anxious to have food, she made an effort to swallow some beef tea, as she said she did not feel much strength from the enemata. Immediately a violent fit of coughing came on, which continued at intervals, the breathing from this time becoming more and more difficult. She died at 8 p.m.

Sectio cadaveris, twenty hours after death (permission only granted to examine throat).—Body well nourished; rigor mortis well marked. The pharynx and larynx were removed, with the trachea and œsophagus as low as the sternum. On opening the œsophagus and pharynx from behind, a dark-coloured mass, about the size of a hazel-nut, was noticed, which on section proved to be corroded tissue, enclosing a coagulum of blood. This was situated at the outer side of the left arytenoid cartilage, and the left aryteno-epiglottidean fold was destroyed at its arytenoid attachment; continuous with this was a corrosive patch in the larynx on the left side, extending down to the superior vocal cord; the tissues all around were much thickened on the same side, the result being that the epiglottis was prevented from closing. No trace of the action of the nitrate was found lower down the œsophagus.

Remarks.—It is important in this case to note the mode in which the piece of caustic was taken. She stated that, taking up the little pill-box, and seeing that there was only one in it, she threw the supposed pill with a jerk from the box into her throat. The impetus thus given to it, no doubt, caused it to strike on the pharynx, and there lodge and remain (no water was taken with it, nor till some little time after), gradually dissolving and coagulating the albuminous tissues, and so was surrounded and held fixed till completely dissolved. It would probably have been easy to dislodge it in the first instance had suspicion been sooner entertained. The corrosion of the larynx must have been secondary to the destruction of the pharynx, being much less extensive. One can easily understand fluid passing into the larynx in this case; for not only were there stiffness and loss of sensibility, but, in addition, mechanical obstruction in the form of a mass of coagulated blood, effectually preventing the epiglottis from more than half closing. As regards the operation, life was evidently prolonged three days, and on the third day it was arranged to feed by means of a catheter through the mouth, when unfortunately, by a sudden attempt to swallow, a violent fit of coughing took place; the breathing, which was previously easy, became difficult, and, at all times a weak, delicate woman, she sank rapidly.

I remain, Sir, yours truly,
J. Anderson, M.D.

Medical Times and Gazette, July 1st to 29th, 1876.

From this paper we republish the following respecting the case of Fergusson and others *v.* Mason and another, as the gentlemen named are so well known amongst us:

Most of our readers have probably noticed the reports of a suit in the Probate Court, to establish the validity of the will of the late Mr. Nasmyth, the well-known Dentist, not because there was anything unusually noteworthy in the cause itself, but because Sir William Fergusson was the chief plaintiff. And we do not refer to it on account of anything in the suit, but because the defendant-in-chief was a Mr. Francis Mason. Now, both the public and the profession are well accustomed to hear the name of Mr. Francis Mason and of Sir William Fergusson coupled together, and it is, therefore, not very wonderful that many of those numerous people who glance at but do not read things should jump to the conclusion that Mr. Francis Mason of the suit we refer to is Mr. Francis Mason now Assistant-Surgeon to St. Thomas's Hospital. As, however, it is, to say the least, unpleasant to a man to be assured, or to have believed, that he is some one else, or that some one else is he, we take upon us to say that the only points of identity between these two gentlemen is the fact that each possesses the Christian name of Francis and the surname of Mason.

In the issue for July 15th, Dr. James F. Goodhart relates the following interesting case of Pyæmia following Dental Caries.

Dental caries—abscess—suppuration in the inferior dental canal—acute periostitis of the lower jaw—extension of the inflammation along the pterygo-maxillary fossa to the orbit—suppuration in both orbits, and osteitis of the vault of the skull—pyæmia. Such is a short summary of this interesting case. Its publication needs no explanation or apology, for such a result from such a cause is probably unknown. I am indebted to my colleague Mr. Howse for his ready permission that it should be published.

M. C. W—, aged four years and a half, was admitted to Guy's Hospital, under the care of Mr. Howse, on September 30th, 1874.

The family history was good, except that there was some account of a tumour in the grandmother. The child had been a healthy boy till six weeks before his admission, when he came home from school with a bad attack of diarrhœa. A few days subsequently he was much frightened by a fire, and it was within a short time of this that his left eye was noticed to swell. In a fortnight the other eye did the same, but no notice was taken of it. He gradually got worse, and for three weeks prior to admission he was in a drowsy state.

On admission, he was delicate and vacant-looking. The left eye was much more prominent than the right, with thickening along the upper margin of the orbit. Beneath the edge, under the eyelid, was a hard, cartilaginous, freely moveable body, which reached backwards apparently into the orbital cavity above the eyeball, while it extended downwards into the eyelid. The movements of the eyeballs were perfect, and sight was unaffected. The temperature was

104·5° in the morning, and 102·7° in the evening; pulse 160.

He was seen by Dr. Fagge, who could discover no cause for the elevation of temperature. Dr. Fagge thought, however, that as the roof of each orbit was evidently affected, and the boy tottered as he walked, and was peculiarly torpid, the disease, whatever it was, had extended from the orbital fossæ to the cerebral hemisphere. The ophthalmoscop- revealed only large and tortuous veins, with a small hæmorrehage on the outer margin of the right optic disc. The temperature remained high, and he rapidly became much worse, losing control over his evacuations, and he died nine days after admission.

Autopsy.—The eyeballs were hardly prominent now, but the left upper lid was full, and a hard, moveable mass could be felt along the orbital ridge. The scalp was normal; and nothing wrong was noticed till, on the removal of the vault of the skull, the dura mater in its frontal part and the longitudinal sinus for half its length were rough and of an olive-green colour from purulent infiltration of the membrane. The corresponding inner surface of the skull was of the same greenish tint and rough all over, partly from the deposition of a layer of new bone; partly from an irregularly excavating caries. Confining the description still to the bones of the skull, nothing further was noticed till the roof of each orbit had been removed, and then a thick layer of similar green-coloured pus was exposed, lying, of course, between the bone and the orbital periosteum. The orbital cavities (muscles, &c.) were quite healthy. On the right side the pus extended all over the outer side forwards, and appeared externally over the superciliary ridge, while it passed backwards through the optic foramen, and sphenoidal fissure *underneath* the cavernous sinus, across the sella turcica and groove for the optic commissure, through the right optic foramen and right sphenoidal fissure,—all this *beneath* the dura mater of the base of the skull, the bone itself being rough and carious, and part of the body of the sphenoid infiltrated with a grumous, chocolate-coloured pus. Thus it appeared the right orbit had become affected after the left. On the outer side of the left orbit pus was traced into the spheno-maxillary fossa, and thence to the condyle of the lower jaw. The articulation was free, but the whole of the condyle and much of the ascending ramus on this side was bared of its periosteum, and pus lined the inferior dental canal as far as the first molar tooth, which was decayed, lying loose in its socket, and with carious bone about it. It should also be said that, though the pus so closely surrounded the cavernous sinus on each side, yet these sinuses were quite unobstructed. So, also, was the longitudinal sinus, though its walls were very much thickened. The frontal sinuses were normal. The lump felt during life over the left superciliary ridge consisted of a tough, opaque, yellow mass, very much like some lymphomata as seen in the neck, or like a gummatous mass. It certainly had all the microscopic appearances of some new growth, but after further examination it was evidently of an inflammatory nature. Its precise situation was from the lachrymal gland externally to the inner margin of the orbital ring, and it lay half protruding from and half within the orbit, and adherent to the bone, which on its removal was bare of periosteum.

The brain weighed forty-eight ounces, and lymph was found at its base, and a dot or two of pus was found beneath the arachnoid on the left side, about an inch from the longitudinal fissure. None of the veins contained any coagula. The brain was exceedingly soft, and the number of small cavities formed by softened substance scattered throughout it was remarkable. The whole brain, cerebrum, and cerebellum was studded. Most of them were small—mere pin-points,—but one or two were larger; and they had this peculiarity—that their walls were sufficiently well defined and hard to show that they were not formed by a general softening of the brain, more advanced at some parts than others, but that they were really due to numberless local spots of disease, very probably embolic. Ecchymoses were found in the retinæ, on the pleuræ, and in the substance of the lungs, heart, and kidneys; but no emboli could be found in the vessels. The lungs contained early pyæmic infarcts, and there were early abscesses in the heart and kidneys.

Remarks.—There can be no doubt from the post-mortem appearances that the source of all this mischief was a decayed tooth. It had led to caries of the bone, to suppuration in the inferior dental canal, and thence the pus had followed the course which has been described. The case is one, perhaps, rather curious than instructive, though as a record of a bare possibility it is worth remembering. It is a good illustration of the bad results which may follow a slight amount of mischief in an unhealthy subject, and is remarkable in that there is no history of any toothache, swelling, or other trouble about the jaws. Excepting a bad attack of diarrhœa, the first symptom noticed was swelling, first of one eye and then of the other. Notwithstanding that by the time the second eye was affected, as shown by the inspection, there must have been considerable suppuration at the base of the skull, about the pituitary fossa, and very probably about the vault also, the disease at its onset must have been peculiarly insidious, and the pyæmia of late accession, within a few days of his admission. The case has several points of pathological interest; chief of these seems to be the occurrence of chronic inflammatory tumours, such as those in the orbital fossæ, and not abscesses, though they were directly continuous with the suppurating surfaces of the base and vault of the skull. Pus so commonly begets pus. It is not, however, always so. One occasionally finds in the lung, in cases of pyæmia of somewhat more chronic form than usual, indurated spots of chronic inflammation evidently produced in the same way as the, it may be quite adjacent, abscesses. In one instance, in a very chronic case of pyæmia after amputation of the leg, the extension of grey tubercle round the central inflammation was seen. Such cases depend upon some peculiarity in the infective material, or upon defective reaction on the part of the infected tissue, which in turn must, of course, depend upon the state of the body as a whole. Experiments on animals have shown that by varying the strength of the infecting agent, the form—or, perhaps more correctly, the degree—of cell-growth can be made to vary from abscess to tubercle. In this case, however, it was probably no dilution of the poison which led to the orbital tumours; but the whole history shows that the infected tissues were most tolerant, and not easily excited. Had it been otherwise it would have been impossible that such an amount of disease could have existed. In the case of chronic pyæmia, just referred to, the patient had lost so much blood from a uterine fibroid tumour that her leg became gangrenous from the extreme feebleness of the outlying parts of the circulation, and weeks after the amputation which this condition necessitated she died. Is this not always so in chronic pyæmia? It occurs in enfeebled patients whose tissues are in so quiet a state—*i.e.*, so accurately supplied with just the requisite amountof nutriment and energy—that they can hold their own, and no more. In such a condition where is the blood to produce inflammatory congestions? and the tissue elements have not got it in them to multiply and make mischief. So the wandering cells are few in number; they meet with no response in their lawless excursions and indurations, and organising productsresult in place of abscesses. The practical point which such cases teach is this—that chronic pyæmia is one stage nearer no pyæmia at all than the local outburst in the more rapidly fatal forms. If it is chronic because, as has been said, supply and demand happen to be adjusted for maintenance only, and not for growth; how pertinent in its suggestions is the process on the treatment of inflammation in general! But, as if to contradict what has been said with regard to the relation between the orbital swellings and the pus elsewhere, the patient in question ultimately died with high fever, and apparently acute pyæmia. Well, "the worm will turn," it is said, and possibly some very fetid change may have occurred in the dental abscess, and thence have been propagated to other parts in the last few days of life. Such a view is quite in accord with the bacterial origin of pyæmia, which obtains so much credit at present. This much, however, seems certain—that the local inflammations which caused the patient's death, and those which were noticed first some time before death, were of different dates. Between the two the condition of the patient had been altered, both as to his surroundings and his diet, and quite possibly, though advantageously to the vigour of his tissues individually, not altogether to the continuance of life, so far as it was threatened by pyæmia. The logical conclusion of these thoughts is not, as some may think, that patients suffering from any of the various inflammatory diseases are to be starved and bled, and reduced to the lowest possible ebb; they only suggest caution. It is possible to do too much. Pyæmic cases, for instance, particularly, are often stuffed merely by routine. Is it always good for such cases that they should be so? Is it probable that Sir James Paget's advice with regard to reduced supplies in carbuncle might with advantage be applied to many other forms of disease, both in medical and surgical practice.

Johnstons' Dental Miscellany.

The following letter from this journal touches upon many points of interest:

Sir,—The questions of Dental Reform, Dental Education, Professional Advancement, and the discussions about the Status of the Dentist, are perhaps as vigorously pursued today as in the earlier days of the history of Dentistry. The pioneers in our profession could not have been more earnest in their labours for the elevation of their chosen calling than are the accomplished Dentists of 1876. English and American journals teem with essays and reports of discussions on this subject. The physician, the medical man, or the surgeon, ranks very well, socially, morally, and intellectually in America, and the American Dentist strives for a like respectable position. The mechanical department of our profession seems to be the principal barrier to the desired position, and

American and English Dentists have urged a separation of the two branches of the Dental art. I will not here enter into this discussion, but will only state my belief that this projected separation would avail nothing towards the desired end, but would tend rather to produce a contrary effect. For when we are asked as Dentists to lay aside our hands, and employ only our brains, we cease to become Dentists. As well ask the painter, or the sculptor, to simply design, or to tell people *how* to perform what the master's hand alone can do. Of course we need not perform all the purely mechanical laboratory work, but the Dentist should not be above knowing this menial work thoroughly. The reform needed to elevate us to the rank of a profession may lie rather in our "fee bills." Is it according to the ethics of a learned profession to have a "fee bill," "a scale of charges," or whatever it may be called? If we charge a fee of so many shillings or dollars for this operation in amalgam, so many for this in gold, so many for this case of two artificial teeth, and so many, in a graduating ratio, for this other case of six or eight teeth, are we not copying rather the customs of trade, and of the mechanics, than of a liberal profession? Shall we measure our "*work*," and sue for it before a justice, by rule, as a mason or plumber would? Here, I think, lies the difficulty in our profession, and it is not in the labour of our hands that we are degraded. The continental physician presents no bills. He sends his compliments at the end of the year, and a list of the number of visits he has made you. You give him according to your means or his known reputation, more or less, and this physician must look upon the Dentist as one who is not governed by the same professional ethics—for how could he conclude to send bills, as: "For one case of measles, treated with diaphoretics, so much; one case of gout, so much; total, so much?" If the Dentist receives a fee of a certain amount per sitting, no matter what the operation may be, the code of ethics would certainly be observed; but, perhaps, if he retained a trace of avarice in his composition, the influence might be bad on himself and the operation; for it would take a very disinterested and almost superhuman mind to continually give many times the value of the fee in service; and if gutta percha or gold operations were rewarded alike, the tendency would be to employ rather an excess of gutta percha. In New York and some other cities the *time system* has been adopted, and the case of Mr. Peacock, in England, showed that some Dentists have adopted the same system there. This method would hardly be advisable for the mechanical or artistic part of the profession. If we would elevate the standard we must adopt some method in our fees compatible with the customs of other liberal professions. This brings me to the question which I should like to propose. Is it in accordance with our aspirations to have for distribution *cards* with "Professional Fees," "List of Prices," or "Dental Fees," inscribed or neatly printed on their backs? I have in my drawer many specimens from prominent American Dentists of these cards. Some are very explicit and expose the charge for "devitalising the pulp," "removing tartar," "treating of abscess," &c. &c. As most of these cards have the names of eminent practitioners, successful Dentists, and successful money-getters upon them, the question has often arisen whether it is not a paying advertisement and rather a genteel system of advertising, and I must acknowledge that I have been tempted to go and do likewise. Once, indeed, after great study, I edited a card of this kind and had some printed, but the distaste for advertising prevented me from issuing a single one to my patients or to brother Dentists. The more I considered the subject, the more I felt that the modest looking "*fee bill*" savoured of the cards in the public prints—though of course not so disgusting as "Dr. Bunkum—having devoted thirty years to researches in the study of Dentistry, &c. &c., inventor of the suction system (?)—teeth at five francs"—still the flavour was similar. I should like to be set right if wrong, but until we modify the commercial aspect and the tradesmen's customs of our character as a profession, we had better not try to cast odium on the mechanical and artistic department of Dentistry.—C. M. WRIGHT, *Johnstons' Dental Miscellany*.

Basel, Switzerland.

MERCURY—ITS USE AND ABUSE.

By THOMAS FLETCHER, Esq., F.C.S.

Read before the 8th District Dental Society of New York, May, 1876.

HAVING had for many years very exceptional opportunities for obtaining information on this subject, the following points have been noted by me as bearing on the question whether mercury is or is not admissible in filling materials. There is undoubtedly a strong prejudice against it, and this prejudice is to a certain and very limited extent well founded, so long as the usual practice of most operators is adhered to. A great number of experiments have proved most conclusively in every case that there is with all alloys used for amalgams, one definite maximum proportion of mercury, which cannot be exceeded without serious damage to the results. So clearly is this shown, both in theory and practice, that a compound which is a permanent and reliable filling material, may be rendered, by excess of mercury alone, a temporary and unsatisfactory one. The proofs of this may be seen daily in practice, provided the proportions of metals are registered, and the plugs watched at intervals.

Taking this as a point which I have proved repeatedly with every alloy which has come under my notice, let us consider the following serious fact. I have been in the habit of purchasing amalgam waste for refining, and, taking an assay of the metals; I have never found in any one sample less than twice the proportion of mercury necessary either for convenience in use or good results, and I have more than once found from seven to ten times the proper proportion.

It has been frequently stated that the mercury in amalgams is either soluble or separates in some way, causing constitutional mischief. This may possibly be the case (although not at all probable) if we use what may be called a weak solution of filings in mercury, instead of using the mercury simply as a means of obtaining a welding surface. If we use it in the latter way, there are few alloys from which the mercury will entirely evaporate, even at a clear red heat continued for some time. I have endeavoured to evaporate the mercury perfectly from a small quantity of a simple alloy, by exposing it to a bright red heat in an open crucible for one hour, and without success. I have also placed weighed plugs in a rapid current of high pressure steam for months continuously, and found, not a loss in weight, but an increase from oxydation. An exception may perhaps be taken with regard to an alloy of cadmium, which has recently been introduced, notwithstanding the universal condemnation of this metal many years ago. I have not used this alloy in the mouth, but find in acids that the mercury appears to be the only metal which is not acted on, and that it collects in a fluid or semifluid film on the surface of the plug. This alloy is hardly worth further consideration, as there is little doubt but that its inherent faults will rapidly put a stop to its use. If they do not, makers of amalgams have much both to learn and unlearn.

When I say there is one definite proportion of mercury which cannot be exceeded, it must not be understood that the same proportion suits all alloys. On the contrary, some metals and alloys will hold and combine with an amount of mercury sufficient to render permanently fluid or soft many other alloys which work well with a smaller proportion. Take for instance precipitated silver, which works fairly with a proportion of mercury nearly three times its weight. Take the same silver and alloy it with an equal weight of grain tin, and it will require then about one tenth of the quantity it previously combined with, and anything like the proportion required by precipitated silver would simply make a permanently brittle and soft mass, worthless for even the most temporary plugs. The addition of tin brings in other faults which condemn the alloy for good work, but which it is not my purpose to discuss at present.

If we take precipitated palladium as it has appeared in the market recently, along with a simple theoretical test, we shall, I think, get at the law which rules the proportion of mercury which can be safely used. Palladium, as we have known it for many years, has been always referred to as the amalgam above all others which has proved itself thoroughly reliable for almost an unlimited time in the mouth, its excessive cost only limiting its use. This takes up and combines rapidly and perfectly with a very large proportion of mercury (twice or three times its weight), and yet we have had recently, samples of palladium, pure and apparently the same which have turned out worthless in the mouth. The only point which enables the good and the bad to be distinguished being that the latter is slow in hardening. Now if we take any compound which is slow in hardening, and pack it in a cavity, in the presence of moisture, we shall find that a capillary film of liquid gradually forces its way down the sides, lifting and remoulding the plug, until its adaptation is more or less completely destroyed; and we find by a further test, that in the total absence of moisture, *i. e.* when the plug is kept dry until hard, this does not take place, and the question at once resolves itself into two points. That any and every soft plug shall be completely protected from contact with the smallest trace of moisture until it is perfectly hard, or that our amalgams shall be used in such a manner that they are nearly hard when inserted, and that they shall contain so small a proportion of mercury that they will be practically quite hard before moisture is allowed to come in contact with them. It is now about three years since this theory of mechanical interference of moisture was first raised by me, and my experience both in and out of the mouth has fully and entirely confirmed it in every case. That it is possible to make an alloy which, under certain conditions, will give off mercury, I have proved, but such alloys as these do not, I think, exist in any form which is practically used in the mouth.

I have more than once condemned the practice of mixing with excess of mercury and squeezing. It would appear from a number of experiments that the principal if not the only objection to this is, that it very greatly lengthens the time required for hardening, and therefore entails more or less damage so far as the mechanical adaptation to the cavity is concerned.

We must, therefore, to obtain reliable results, limit our proportion of mercury to the smallest possible quantity with which the alloy can be worked, suffering inconvenience from deficiency rather than consulting our ease by adding a little excess; taking as a rule, admitting of no exception, that if a soft plug is left in contact with a trace of moisture, its failure in one or all important points is a question of time only. In using gold or tin for plugging, the mechanical interference of moisture is absolutely nothing, as when a plug is finished it has at once its permanent hardness, which enables it to resist any attempt at remoulding by the pressure of capillary films of moisture. A gold or tin plug, be it good, bad or indifferent, stands unchanged, any failure taking place by alteration or decay of the tooth-substance; an amalgam improperly used, on the contrary, will commence the failure by its own alteration of shape as soon as the operator has left it. It is an easy matter to take such precautions as are necessary to ensure the best possible results, with perfect uniformity; the selection of any special alloy becomes then a simple matter. If the alloy itself is tested and uniform in properties, there will be no variation in results, and the theoretical tests will correspond precisely with the results in the mouth in every case. An amalgam may pack well and retain its form perfectly in a dry glass tube, and yet be worthless in ordinary practice, as it may fail from want of power to retain its form in the presence of moisture. If it will retain its adaptation if packed entirely under water, it may be safely used in the mouth provided no objectionable metals, such as zinc, cadmium, &c., are contained in it.—*The Dental Advertiser.*

OXYCHLORIDE OF ZINC.

By F. M. Dixon, D.D.S.

Read before the Odontographic Society of Pennsylvania.

(Reprinted from the 'Dental Cosmos.')

I question if there are any in the profession who have not been convinced that, notwithstanding the fact that gold in some of its prepared forms is unquestionably the best substance known to science for filling cavities of decay in human teeth, yet, in consequence of the many serious objections and difficulties in the way of its general use,—objections and difficulties too well known to all, and too frequently discussed, to need here more than a passing notice,—it cannot but be clear to every thinking mind among us that there must exist in nature's laboratory somewhere a substance or number of substances which, separately or combined, possess all the requisite qualities of gold, yet lacking all —or at least many—of the objectionable features of that metal.

If this conclusion be correct, no one, I apprehend, will for a moment hesitate to acknowledge that it is the duty of every intelligent man of our specialty to do all that lies in his power to bring to light and usefulness some substance that can be well packed in a tithe of the time needed for making a good gold filling,—a material that will afford still better hope than gold does of saving for life delicate and frail teeth, by reason of its easier and greater adaptability to the varyingly formed walls of cavities, and its greater compatibility with all the conditions, because of its greater affinity, as it were, to dentine, enamel, and possibly even for nerve tissue, because of its less ready and less troublesome response to thermal and perhaps galvanic influences; and last, though not least by any means, by reason of its greater availability in the hands of only moderately skilled operators, and by reason of lesser cost bringing it within reach of worthy sufferers who must to-day, by reason of the necessarily expensive character of elaborate operations in gold, suffer the loss of their teeth often ere they have reached middle life,—thus bringing dental care within reach of a greatly increased number of sufferers from the effects of decaying teeth.

Dental practitioners have been within the last decade or two so in love with the interesting art of making beautiful gold fillings (the power of which fascinating influence over my own mind I am constrained to acknowledge), so bent upon the, perhaps, laudable effort to outdo every competitor for honours in this direction, that I am not by any means sure we have not thought and laboured too little to secure so great a boon to suffering humanity. If those of us who, though not strictly scientists, inventors, or discoverers, know the needs of humanity in this respect, had thought, talked, written of, and worked for this end, experimenting with the different substances offered as substitutes for gold, finding out their good and bad qualities, making to each other such suggestions as experience may have dictated, setting forth as forcibly as possible the great need of such a material, the great blessing it would confer upon humanity, the great honour it would secure to the inventor or discoverer, I do believe that ere this we should have been in possession of the perfect thing, so long sought for and so earnestly desired, a filling material so superior to the gold that the yellow, hard-to-work, untoothlike substance might, for all the Dentist need care, remain in the mine or the mint; and the then much more useful Dental practitioner would greatly rejoice in his ability to save a hundred teeth where he now saves one, and with much greater ease pursue his noble calling; while rejoicing communities on every hand would rise to call us, if not blessed indeed, at least by better sounding titles than those by which we are now often designated, after thumping for from thirty to one hundred and thirty minutes at a tooth, to pack, it may be, the most solid and best gold filling that was ever inserted into a cavity.

Having for many years felt conscious of the great objections to gold for fillings, or rather the insurmountable obstacles in the way of its use in a vast number of cases where teeth might and ought to be saved that are not, if we had in possession a substance just as reliable as well-used gold, one that would pack with about the ease with which Hill's stopping can be inserted when used under the most favorable circumstances, I have long been in the habit of fairly testing anything offered which I could safely experiment with, hoping always that it would prove to be the article my very soul desired so earnestly.

While I am forced to acknowledge that there is, as yet, nothing known that may even partially take the place of gold for permanent fillings, I am also constrained to say that oxychloride of zinc, in some of its offered forms, has proved so useful to me, lasted so well, and is to-day doing such excellent service in many cases where I have succeeded in properly applying it, that I feel justified in urging upon all who have not yet done so the importance of taking it in hand at once, experimenting faithfully with it, and striving by every practicable means to have it improved, as well as to discover the very best manner of using it as it is, to learn what good qualities it has which have not been made known, and whether it is not so nearly the desideratum that, with some ingredient added which some one of us may have the good fortune to discover, it will prove, after all, to be *the thing* which, in the hands of the honest, capable dentist, is to subserve in large part the great purpose for which the profession exists. It would doubtless be considered a work of supererogation were I to enter into an explanation of the chemical and mineral characteristics of this compound. Suffice it to say that, as to the oxide, no one has, I believe, ever made any charge against it of incompatibility or disagreement with any of the constituents of the human teeth or their surroundings. Of the chloride I cannot, of course, say as much, although from my own observation I must acknowledge I have no reason to fear it on hygienic grounds. On the other hand, I have, I think, excellent reason for believing it more beneficial than hurtful to sensitive teeth whose pulps are in a healthy condition and not actually exposed, and I am by no means sure that if judiciously used it would not prove beneficial even then. Why not? Is it not astringent, disinfectant, and antiseptic? If I am not much mistaken, it is all of these; but remember I do not assert its beneficial effect upon exposed pulps. I am not prepared to enter the controversial arena with those who may doubt or deny it. My aim is to stir up inquiry and investigation, by which the facts may be reached, even though the conclusions drawn from my observations should prove erroneous and valueless. Every new experience in its use, even with cases the most critical, has served more and more to strengthen my favorable impressions of it, until every vestige of doubt has been dispelled from my mind, and I now use it (where I believe the pulp to be in perfectly healthy condition and not exposed) without fear of evil consequences,—in fact, as I would use gold or tin-foil,—the only failure which I have met with in the last six years having been purely accidental.

(*To be continued.*)

Miscellanea.

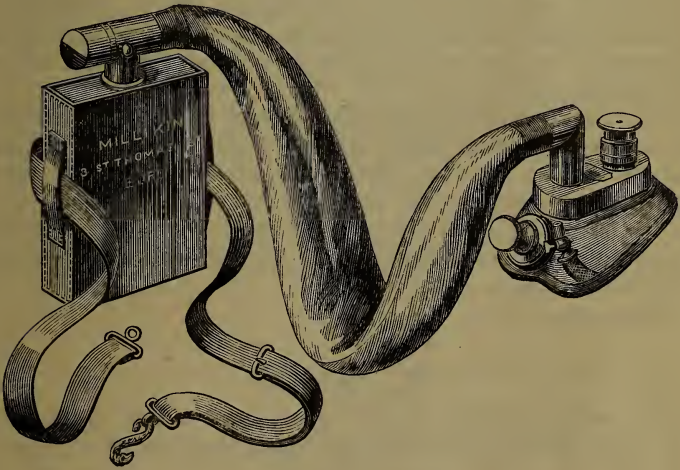
A NEW FLASK FOR THE ADMINISTRATION OF ETHER.

By Tom Bird, M.B.

Since Mr. Clover introduced the exhibition of nitrous oxide gas as a preliminary in the administration of ether, no method proposed seems so free from objection. Through Mr. Clover's kindness I was enabled to make numerous useful observations at many of his early administrations.

It has been, and I am afraid to a great extent always will be, difficult to devise a simple, and at the same time light portable apparatus for those who administer these anæsthetics. The portable gas apparatus of Coxeter, worked with the cylinder either vertical (Mr. Clover) or horizontal (the more portable), by means of the foot, is the lightest and simplest at our disposal. In the gas-and-ether apparatus of Mr. Clover, the Catlin bag is done away with. An elastic bag, ovoid in shape, has been substituted between the ether-box and the face-piece, communicating with the latter by means of a valve, which regulates the supply of gas and ether to the face-piece. In this apparatus the gas does not pass through the ether, but mixes with it in the bag. Mr. Clover did first try passing the gas through the ether, but abandoned it for his present plan.

In suggesting the ether-flask shown in the drawing I have kept the facility of driving the gas through the ether, as by this means the ether vapour can be driven on to the patient. Disconnected easily from the gas apparatus, it can be used for the administration of ether alone, without the trouble of constantly adding the ether, its full charge being six ounces.



The flask is made of thin tin, in the shape shown in the engraving. The upper surface is perforated by an oval opening, lined with a piece of tubing, which acts as a collar, in which slides a tap. The flask is connected by the horizontal part of the tap on the one hand with the gas-tube, on the other with Mr. Clover's bag and Coxeter's ordinary face-piece; or it slips easily into a leather case, fitted on to an elastic belt, worn in the ordinary position when in use; some heat is obtained from the body by this means.

I have not tried the flask as yet in the winter time, but I propose, when using it disconnected from the gas apparatus, to draw the air into the flask through a tube of india-rubber worn under the waistcoat, once round the neck, its free end projecting externally. I found last year, during some experiments made with a view to using the heat of my own body for the evaporation of the ether, that a thermometer carried in the waistcoat pocket generally registered 80° Fahr.

The flask with belt weighs only eleven ounces and a quarter; disconnected from the gas, it can be carried without any inconvenience in the coat-tail pocket.

In conclusion, should I seem, from the foregoing, to incline to ether rather than chloroform, I am of opinion that chloroform vapour sufficiently diluted to produce anæsthesia "acts as a stimulant;" that it is "possible to produce paralysis of the heart with ether" (Snow); that ether ought not to be advised in some cases; but, beyond all, that "insensibility is not caused so much by giving a dose as by performing a process," and that in this, at least at present, lies the whole of anæsthesia.

The Austrian Government have fixed upon an anæsthetic to be used in the empire, varying in proportions, according to the season of the year. This, however, enters upon another phase beyond the object of this communication.

Mr. Millikin, of St. Thomas's Street, Borough, has made the principal parts of the above apparatus.—*Med. Times and Gazette.*

38, Brook Street, W.

AN APPEAL.

We regret to have to state in reference to the case alluded to in our last issue under the above heading, that circumstances have come to our knowledge in connection with it which have satisfied Mr. Saunders and ourselves that it is not a case worthy of the sympathy of our brother practitioners.

THE MIGNOT GALLERY OF PAINTING, 25, OLD BOND STREET.

Apart from the interest which a visit to this collection of the works of a talented and lamented young artist must excite from their actual value and beauty, we are sure that our professional brethren will feel an additional inducement to inspect them, when we state that Mrs. Mignot, to whose affectionate pride in her artist husband, this temporary collection of his works is due, is the daughter of the late Dr. Chapin R. Harris, who did so much for the intellectual advancement of Dental surgery in America, and whose works are so well known and appreciated here.

Louis Rémy Mignot, though French by name, was American by birth, and hence it is not to be wondered at, that some of his grandest works are devoted to the delineation of American scenery, though the later years of his too short life were chiefly spent in England. We do not profess to be art critics, but certainly if any of our professional brethren will follow our example and seat themselves awhile for quiet contemplation before Mr. Mignot's magnificent painting of the Falls of Niagara, they cannot fail to be gratified and refreshed. The point from which the view is taken renders this painting one of the most extraordinary we have ever beheld. It is water, water, and nothing but water, save that in the far distance there is a long low strip of the opposite shore, in such hazy indistinctness as not to mar the impression of an almost boundless expanse of water, rushing, thundering down, ever and ever. You see no rocks, you see no bottom, but only water flowing from a remote calm distance, gradually becoming turbulent and tossed, and bounding over in grand curves to the unseen depths. Another large painting shows the falls from nearly below, depicting the wonderful Table Rock, but to our fancy the first is the most fascinating picture. We must not attempt any further description of this interesting gallery, but leave our friends to form their own impressions, wandering with the aid of this gifted artist either among the volcanic wonders of Cotopaxi, or by the green waters of Lucerne in view of the singular strata of the Righi; standing with him in the "Woods at Richmond Park," or on the sea sands viewing the marvellous effects of a "South American Sunset;" resting with him in the sweet repose of "An English Pastoral" or in view of the exquisite little "Study of Trees;" passing from the glories of the "Jung Frau" in the "Morning" and the "Evening" to the sad scene of "Desolation," and after contemplating these and others too numerous to mention, but all striking in their beauty, we think our friends will thank us for diverging from our usual professional topics to direct their attention to Mrs. Mignot's gallery.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The following were the papers set to the candidates at the examination for the Degree held on the 22nd of June.

2 to 4 o'clock, p.m.

N.B.—The Candidate is repuired to answer at least one of the two questions, both on Anatomy and Physiology, and on Pathology and Surgery.

Anatomy and Physiology.

1. Describe the articulation of the Lower Jaw; and mention the structures in immediate relation with it.

2. Describe the act of Deglutition; and mention the muscles concerned in it.

Pathology and Surgery.

1. Mention the causes of Necrosis of the Inferior Maxilla; and describe the symptoms and course of the disease.

2. State how you would distinguish and treat Syphilitic Ulcers of the Tongue.

5 to 8 o'clock, p.m.

N.B.—The Candidate is required to answer at least two out of the three questions, both on Dental Anatomy and Physiology, and on Dental Surgery.

Dental Anatomy and Physiology.

1. Explain the meaning of the following terms in relation to tooth development:—Papilla, Groove, Follicle, Loculus, Enamel-germ, Membranous Sac, Pedicle, Cavity of Reserve, Dentine-cap, Eruption.

2. Describe the typical characters of an incisor, canine, molar, and premolar tooth. How would you distinguish an upper from a lower canine, an upper from a lower premolar, the right from the left in each case? What is there distinctive between the crowns of the first and second lower premolars, and the fangs of the first and second upper premolars?

3. Describe the development and structure of the alveolo-dentar membrane; and give the different theories respecting the nature of the cuticula dentis.

Dental Pathology and Surgery.

1. State what you know respecting Necrosis of the Teeth.

2. Describe concisely the operation of pivoting teeth; name the teeth which admit of this operation, and the circumstances to be specially regarded in its performance.

3. Describe the physical and chemical characters with the microscopical appearances of carious dentine. What are the physiological phenomena that occur during the process of decay?

Edward George Betts, Esq., Student of the Dental Hospital of London, and a pupil of Charles James Fox, passed the primary examination for Membership on July 17th, 1876.

APPOINTMENT.

G. W. Bateman, Esq., L.D.S., to be Dental Surgeon to the Bayswater Orphan Asylum.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

SAUNDERS SCHOLARSHIP—LONDON SCHOOL OF DENTAL SURGERY.

To the Editor of the 'British Journal of Dental Science.'

Sir Charles R. McGrigor presents his compliments to the Editor, and, as Trustee for the Saunders Scholarship, begs to make known to those whom it may concern that he is in receipt of the dividends for the above endowment, and that the annual amount, £20, will be ready for award, according to the intention and promise of the donor, on 1st of October next.

MR. ALFRED HILL'S HISTORY OF THE DENTAL PROFESSION FOR THE LAST TWENTY YEARS.

To the Editor of the 'British Journal of Dental Science.'

Sir,—Will you allow me space to say, in reference to the announcement of my book which you were kind enough to make in your last issue (July), that I am in full anticipation of its being ready in October next. By the advice of my publisher it is to appear then rather than earlier, and this on account of the absence from town of so many members of the profession during the present month and September. I would also take this opportunity of requesting intending purchasers to address their orders to the publishers Trübner and Co., Ludgate Hill, or through the various depôts, where, I have no doubt, their wishes would meet with the usual attention. You are correct as to my intention of publishing only a limited number of copies, as, from the first, I have not had the remotest idea of any pecuniary gain in the matter. It would very much facilitate the necessary arrangements if gentlemen would send in their names as early as convenient to themselves. In conclusion, I may add that due attention will be given to paper, type, and binding, so that in this direction, as well as the matter it contains, the work may prove to be acceptable to all. An advertisement appears in the proper place in your journal.

I am, Sir, yours truly,
Alfred Hill.

23, Henrietta Street, Cavendish Square, W.

THE NEW DENTAL SOCIETY.

To the Editor of the 'British Journal of Dental Science.'

Sir,—In a report of the proceedings of the last meeting of the "Society of Surgeons practising Dentistry" I noticed a statement to the effect that several specimens of dentigerous cysts were exhibited. As I have hitherto been under the impression that such pathological specimens are extremely rare, I think the appearance of several specimens at a meeting of this Society requires some explanation.

There are several specimens of dentigerous cysts in the museum of the Odontological Society; indeed, the collection there is considered unique. Can it be that these preparations have been lent to the Society of Surgeons practising

Dentistry? If such be the case, I hope that our Curator sees that sufficient care is taken to guard them against possible injury in their removal.

I beg further to suggest that in the event of a second loan of specimens being obtained from the Museum of the Odontological Society the borrowers will have the courtesy to acknowledge the accommodation in the reports of their meeting.

I am, &c.,
OBSERVER.

THE DENTAL HOSPITAL OF DUBLIN.

To the Editor of the 'British Journal of Dental Science.'

DEAR SIR,—I have much pleasure, in accordance with a resolution passed at their meeting in the Royal College of Surgeons on Friday last, in conveying to you the grateful thanks of the Staff of this Hospital for your kindness in reprinting from one of the Dublin papers the report of its proposed establishment, and for your encouraging remarks in your comment in furtherance of the project.

I need hardly say that I am happy to be the medium of communicating to you the unanimous thanks of the Staff, and I venture to say also of all those who take an interest in the establishment of so useful an institution.

The benefits that the proposed hospital must confer are numerous and evident, and will be of mutual advantage both to the profession and the public.

I have pleasure in stating that the arrangements for the establishment of the institution on a sound basis are progressing satisfactorily.

I am, &c.,
JOHN O'DUFFY,
Hon. Sec.

Royal College of Surgeons, Ireland, Dublin;
25th July, 1876.

The following is the list of officers of the Dental Hospital of Dublin as they at present stand:

Consulting Physician.—THOMAS HAYDEN, Esq., Fellow and Vice-President of the King and Queen's College of Physicians, and Physician to the Mater Misercordiæ Hospital.

Consulting Surgeon.—EDWARD D. MAPOTHER, Esq., M.D., Surgeon to St. Vincent's Hospital.

Dental Surgeons.—FREDERICK RYDING, Esq., L.D.S.; WILLIAM B. PEARSALL, Esq., F.R.C.S.I.; HENRY SHERLOCK, Esq., L.R.C.S.I.; M. J. BLOOM, Esq.; FRANCIS M'CLEAN, Esq., L.F.P.S. Glasg.; JOHN O'DUFFY, Esq., M.O.S. Gt. Brit.

Hon. Treasurer.—J. H. LONGFORD, Esq., M.O.S. Gt. Brit.

Hon. Secretary.—JOHN O'DUFFY, Esq., M.O.S. Gt. Brit.

ON DENTAL REFORM.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In reference to the letter of "Pro bono Publico" I beg to assure him that "Brazier-Dentists" are by no means so rare as he appears to think.

In the town in which I reside, with a population of under 100,000, there is one "Dentist" who uses BRASS to the exclusion of everything else; another who only uses it less because he works in vulcanite, which the other does not; and a third who employs it occasionally. I knew of another who, for at least twenty years previous to his death, never used anything else. Need I say that those now living are inveterate advertisers, and one of them all but calls heaven to bear witness to the purity of his materials.

I quite agree with the suggestion of your correspondent "Urtica" as to the advantage of forming a society which should take cognizance of the doings of such rascals, whose lives they should make a burden to them and render as uncomfortable as possible. But I would not have them stop here. As the Odontological Society declines to take any political part in the affairs of the profession, they surely cannot take umbrage at the constitution of a society that does; on the contrary, recognising its desirability as I feel sure they must, I cannot but think they would be the first to welcome its existence. Hitherto we have been a body of men without a head, and I feel convinced that were such a society fairly floated, all the great questions of the day at present distracting the profession would be much advanced. I think that the true wishes of the provincial practitioners (who would certainly have to be consulted before Parliament interfered in any way) on the subject of Dental Reform, for instance, would be more readily ascertained; under the present state of things the only way of making our wishes known is by "writing to the Journal," the hard-worked editor of which has hitherto taken the initiative in almost every question affecting the profession for many years.

Rightly or wrongly, I believe that a large proportion of country practitioners have very little faith in what the "leading London men" will do for them, simply because they cannot feel the same interest in the stamping out of quackery that they do. With them it is a sentiment, and nothing more; with too many of us, it is a matter of life or death. What care they for what Mister Moses, the eminent Dentist, has to say respecting the patent Her Most Gracious Majesty has recently granted to him? It only affects them with feelings of disgust and shame in which we equally participate; yet heartily as we loathe and detest advertising, still, for bread and cheese sake, many of us whose practices will not stand an advertising siege are driven to it for sheer existence. Depend upon it, the way to purge the profession of the plague-spot of quackery is to offer every encouragement to men to abandon whatever savours thereof; instead of which if a man from necessity has had to resort to the vile system, he too often finds nothing but the cold shoulder and the garments tightly drawn around the forms of those to whom he appeals. Therefore, I say, let us have a society that will understand our position and the true interests of the profession in this its transitory state. Let its motto be "Encouragement and Repression"—encouragement to those who entered practice under a totally different *régime* to that which obtains now, and who are endeavouring to do right and amend their ways; and war to the death to those who, like the Brazier-Dentists and the patent quacks, not only live by cheating and deceiving the public, whose money they obtain under false pretences, but who likewise compel others to adopt a system of business which their very soul abhors. I am, &c., SENEX.

To the Editor of the 'British Journal of Dental Science.'

SIR,—The enclosed advertisement is another strong reason why the principles of "Dental Reform" should be pushed forward to obtain Parliamentary sanction.

When "gentlemen" of *long* standing will *lower* themselves to such practices as this it is high time that all members of the profession who have any respect for it determine at once and do their utmost to put a stop to the regular influx into their calling of men who pay a trifling sum of money to some "gentleman," and are turned out after one or two months' tuition as fully fledged Dentists, which is the case to an alarming extent in the Lancashire and Yorkshire towns, as I can undoubtedly prove. In our town above one half of those styling themselves Dentists, Surgeon-Dentists, &c., are fellows who have taken a few weeks' instructions from such men as the advertiser, and some of them are reaping a golden harvest at the expense of the suffering and gullible "British public," and to the injury and annoyance of respectable practitioners.

Wishing the Dental Reform movement every success,

I am, &c.,

A SUBSCRIBER TO THE FUND.

ARTIFICIAL TEETH.—Mechanical MEN, with leisure time, TAUGHT the profitable and respectable ART OF MECHANICAL DENTISTS, in a short time, by a gentleman of long standing.—Address ——.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.

J. H. P.—Thanks for the specimen forwarded. We are sorry that it was not noticed before.

J. A.—Many thanks for the book.

E. B.—Shall be very pleased to receive a paper on the subject you refer to.

B. H. Y.—Sansom on 'Chloroform: its Action and Administration.' To be obtained of Messrs. Churchill, 11, New Burlington Street, London, W.

Communications have been received from John Wood (Dumfries), "B. H. Y." (Huddersfield), Thomas Fletcher (Warrington), "Senex," Stephen Hoole (London), F. H. Balkwill (Plymouth), Felix Weiss (London), Edward George Betts (London), W. Spencer Watson (London), Morton A. Smale (London), G. W. Bateman (London), John Alexander Robertson, "A Subscriber to the Fund," A.W. Furber, "Observer," Alfred Hill (London), Mr. John O'Duffy (Dublin), Mr. E. Balding (London).

BOOKS RECEIVED.

'Chemistry; General, Medical and Pharmaceutical: including the Chemistry of the British Pharmacopœia.' A Manual on the general principles of the Science, and their application to Medicine and Pharmacy. By John Attfield, Ph.D., F.C.S.

'The Dental Register.'

'Le Progrès Médical.'

'The Argus.'

'The Pennsylvania Journal of Dental Science.'

'Giornale di Corrispondenza pei Dentisti.'

'The Students' Journal and Hospital Gazette.'

'The Western Morning News.'

'The Doctor.'

ERRATUM.—Page 395, line 4 from top, in last issue, *for* Turber *read* Furber.

British Journal of Dental Science.

No. 243. LONDON, SEPTEMBER, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London
Ophthalmic Hospital, and to the Central London
Ophthalmic Hospital.

(*Continued from p.* 401.)

The rare complication of abscess with tumour must not be overlooked, for several instances of the kind are on record. In the College of Surgeons' Museum there is a specimen of fibrous tumour of the upper jaw and occupying the antrum, removed by Mr. Liston. Before the operation for its removal, the antrum had been perforated and pus evacuated, and at the upper part of the preparation there is a small cavity, which contained pus. There can be little doubt that the irritation of the tumour encroaching on the antrum excited inflammation and the formation of abscess. M. Demarquay has placed on record a very remarkable instance, already alluded to, of a bony tumour lying loose in the antrum, as if it had become accidentally cut off from its nutrient vessels, and had become necrosed in consequence. The symptoms very closely resembled those of abscess due to necrosed bone (see p. 353 in July number of this Journal). In forming our diagnosis therefore, we must not conclude that because a given tumour or swelling of the antrum contains pus, we have a simple abscess to deal with. There is almost in every case some irritating cause of the abscess, whether a polypus, or a piece of necrosed bone, or a carious tooth, or a congenitally misplaced tooth, or a foreign body. In the large majority of cases, a decayed molar tooth, the fang of which projects into the cavity, is the exciting cause of the abscess. Nor, on the other hand, does the presence of a tumour negative the coexistence of an abscess. Protrusion of the eyeball is only occasionally observed as a symptom, and does not appear to be present at all during the early stages of the disease, unless the floor of the orbit happens to have been the starting-point of the mischief, and the antrum has become secondarily involved. This was the case with the boy Burbidge (see p. 398 in the August number), in whom the exophthalmus was the earliest symptom, and was evidently due to scrofulous caries of the floor of the orbit, in consequence of which the antrum subsequently suppurated. So, too, in M. Dubois' case (p. 400 of the last issue), the original cause of the distension of the antrum was the presence of a misplaced canine tooth, close under the floor of the orbit.

At later stages of the case the eyeball may be protruded, in common with all the structures surrounding the cavity, but exophthalmus is not invariably observed even in this period of the malady.

The prognosis is almost always favorable; it is only when the surrounding bones are extensively involved, and especially when there is reason to believe that the bones at the base of the skull are carious or necrosed, that there is any reason to anticipate danger to life (see case at p. 398 of the last issue). If, however, in the course of a fever or erysipelas, or after an operation on the jaws, such as tooth-drawing, or an injury to any of the bones of the antral walls, a sudden access of pain and distension in the cheek and jaw, with protrusion of one or both eyeballs, and delirium, convulsions, or coma, or other cerebral symptoms make their appearance, there is some reason to fear that intracranial abscesses and meningitis have set in, and the issue will be probably fatal within a very few days, as in the following case, cited by M. Demarquay, from Fischer, "Klinischer Unterricht in der Augenheilkunde,' p. 9. Prague, 1832:

A shoemaker, æt. 27, of an irritable temperament, and addicted to drinking, had one of the left upper molar teeth extracted. This operation was followed by swelling and redness of the side of the face; epiphora; rigors; photophobia, and intolerable pain in the side of the head, increased and rapid swelling of the face and eyelids.

Some days after, distinct fluctuation at the internal angle of the eye. Abscess opened; yellowish-green and fœtid pus escaped.

The symptoms now became aggravated, and he died in convulsions within less than a month from the commencement of the case.

Post-mortem appearances.—Dura mater and pia mater congested and altered in colour. Anterior lobe of the brain contained a large collection of pus communicating with the lateral ventricle. Optic thalamus soft and pulpy. Substance of the brain unusually soft. Pus covering the pons Varolii, and filling up the fourth ventricle.

The roof of the orbit softened and perforated, the opening communicating with the abscess in the brain. The floor of the orbit perforated, the opening communicating with the antrum of Highmore, which was full of pus.

But such instances are exceedingly rare, and can only occur when the patient is in a very unhealthy state, or is exposed to some unhealthy influences, such as pyæmic infection or the poisons of contagious fevers.

The *treatment* was laid down by John Hunter, and his rules will hold good for the majority of cases we have to deal with.*

"The first part of the cure, as well as of that of all other abscesses, is to make an opening, but not in the part where it threatens to point, for that would generally be through the skin of the cheek. If the disease is known early, before it has caused the destruction of the fore-part of the bone, there are two ways of opening the abscess: one by perforating the partition between the antrum and the nose, which may be done; and the other by drawing the first or second grinder of that side, and perforating the partition between the root of the alveolar process and the antrum, so that the matter may be discharged for the future that way. But if the fore part of the bone has been destroyed, an opening may be made on the inside of the lip, where the abscess most probably will be felt; but this will be more apt than the other perforation to heal, and thereby may occasion a new accumulation; which is to be avoided, if possible, by putting in practice all the common methods of preventing openings from healing or closing up; but this practice will prove rather troublesome; therefore the drawing the tooth is to be preferred, because it is not so liable to this objection."

Having made an opening, the probe should be introduced with a view to ascertain whether there is any foreign body or necrosed bone in the cavity. If there be, it will be necessary to enlarge the opening, by cutting away portions of the bony walls to an extent sufficient to allow of the introduction of a scoop, forceps, or such other instruments as may be required, and to facilitate the removal of the offending body when found.† If, however, no foreign substance can be found, the sinus must be injected with some stimulating lotion (sulphate of zinc, or alum, or permanganate of potash) daily, until the secretion becomes healthy in character and insignificant in quantity. The aperture, if made through the socket of a tooth, can be kept open by introducing a soft silver or leaden lachrymal style, and securing the end by means of silver wire wound round the adjacent teeth. Great care must be taken not to allow this plug to slip into the antrum, and in order to avoid this, it is better to employ for the purpose one of the old-fashioned and now disused styles with a button at the end.

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* The works of John Hunter, F.R.S., edited by James F. Palmer, vol ii, p. 78.

† The existence of separate fossæ or recesses within the antrum, formed by the projection of imperfect dissepiments across it, will sometimes prevent the probe or finger reaching a foreign substance, if the latter happen to be lodged behind one of these partitions. Hence a curved scoop is very useful for the purpose of exploring the interior, and by hooking it round any projecting bony plates or columns that present themselves, the foreign body can be easily extracted.

The antrum can be best perforated through the socket of a molar by means of a large trocar. Care must be taken in performing this operation to guard the trocar, by two fingers resting on the gums, as, if it slips suddenly into the cavity, its point may strike against the floor of the orbit, and even perforate it. Mr. S. J. A. Salter has seen this accident happen, but, fortunately without any bad results.

It has been proposed by Lamorier to make the opening below the malar process, but there is the obvious objection that this is not the most depending part of the sinus, and, consequently, not the part most favorable for allowing the free escape of the discharge. If, however, it is desirable to open the antrum at some part not in the alveolar border, it would be preferable to do so at the lower part of the canine fossa. In thrusting in a perforator at this point, it must be directed backwards and a little outwards; if it be thrust directly backwards, unless the antrum be much expanded, there is some risk of not penetrating the cavity at all, but going into the nasal fossæ, or, if the antrum be perforated, it would be only entered at the extreme angle, and the perforator might easily pass through this and into the nasal fossæ afterwards.

It sometimes happens that the abscess has burst, and a fistulous opening has formed which does not readily close, either on the cheek below the orbit, or in some equally inconvenient position, and it is then necessary, in order to allow of the escape of discharge, to make a second opening. It is decidedly objectionable to enlarge a fistulous opening on the cheek, partly because of the disfiguring scar that will be thereby produced, and partly because a more depending opening will be more likely to give free exit to the discharge; hence, in this case also, it is better to perforate the alveolar ridge through a tooth socket.

In a case in which there is so much swelling of the parts that the jaw cannot be opened sufficiently to allow of extracting teeth or of perforating the alveolus, it will be better to perforate in the canine fossæ. This will be sufficient to give temporary relief, and, after the acute symptoms have subsided, the patient will be able to open the jaws without difficulty, and it will then be easy to perforate through a tooth socket at a later stage.

A very ingenious plan was adopted by Bertrandi in a case of fistulous opening on the cheek. He passed a long and narrow perforator through the fistulous opening, and carried it perpendicularly downwards till he felt the floor of the antrum. He then thrust the point through the alveolar ridge between the two last molars. After this operation the discharge ceased from the fistulous opening and came entirely through the new aperture, and the patient got well.

The two following cases, reported by M. le Baron Phillipe Boyer in his 'Maladies Chirurgicales,' Tome v, p. 115, foot note, illustrate the treatment of abscess in the antrum:

> In the month of September of the year 1839, two men came on the same day to the Hospital St. Louis, each having an abscess of the right antrum. I proposed to them that they should come into the hospital to submit to an operation suitable for curing them. One of them accepted; the other refused, saying that he must return to the country. I operated on the one who came into the hospital, following the rules laid down by Boyer, and six weeks after he went out cured, with a persistent opening in the alveolar border; the tumefaction of the cheek had partly disappeared. The second patient came back in April of the year 1841. He had returned to Longroy, in the Department of the Moselle, where he lived; this man, thirty-eight years of age, is the conductor of *Voitures de Marchandises*. Since the day he first came to the hospital, that is to say, for eighteen months, he had done nothing to his tumour. Eight months ago an opening formed spontaneously in the middle of the right cheek, when pus was discharged. Some days after this opening closed, and the swelling of the cheek was lessened. Every six weeks the cicatrix reopened and gave issue to pus, closed up, and again broke open. The interior of the mouth, had the same swelling as at first, this corresponding to the whole maxillary portion of the palatine arch. The alveolar border, from which the teeth had been extracted with a view to causing a dispersion of the tumour, is much larger than in the normal condition, and is perforated by two very small fistulous openings, only discernable from the pus that exudes from them. Behind the alveolar border is a third fistula. The gums are swollen and bleeding. Again proposed an operation. He accepts and comes into the Hospital St. Louis on April 8th, 1841. On the 9th I purged him, and on the 10th I operated. I follow the rules laid down by my father; I elevate a quadrilateral piece of the gum, and perforate the alveolar wall of the antrum with the aid of a triangular trephine. The swelling of this wall, somewhat exostosed, renders this perforation difficult; and in order to facilitate it, I am forced to direct the perforator downwards towards the swelling in the palate. My instrument then penetrated into the antrum; but at the same time it fractured the maxillary portion of the palate, and there was a flow of blood from the nostril, probably due to the rupture of the arch of the palate, and a perforation of the mucous membrane of the nose. The little finger could pass through the aperture made into the antrum, after I had

removed the instrument and three pieces of bone resulting from the fracture of the alveolar border. No perceptible pus escaped, as had occurred in the case of the first patient. The reason of this phenomenon is plain; the pus had been evacuated by the different fistulous openings previous to and during the operation. The aperture being large, and there being a troublesome flow of blood, I thought it better not to plug the wound, to keep it open, and to stop the flow, but directed the *interne* pupil how to act in case the wound bled. On the 11th of April there was no external swelling, but swelling of the lips of the wound in the gums. The orifice in the antrum being somewhat closed, I introduced a pleget of charpie; on the 12th and 13th the same dressing. On the 14th I removed the plug. A fresh piece of necrosed bone is pulled out. On April 17th, the patient, seeing that the results of the operation are successful, leaves the hospital to return to the country. He is instructed how to inject the antrum. The fistula on the cheek was cicatrised, and everything combined to make me believe that it would not reopen. In fact, in an analogous case that I had observed in the practice of my father, in a woman of 26 years of age, I had seen the fistula in the cheek, which discharged before the operation, ceased discharging pus afterwards, and become firmly and permanently cicatrised.

In the case of *syphilitic ulcers* invading the antrum, constitutional treatment appropriate to the particular case will be of more importance than local interference.

In a case under the care of Mr. Gay, at the Great Northern Hospital, a large erosive ulcer of the cheek, probably of syphilitic origin, in a woman of about 40 years of age, had laid open the nasal fossæ and the antrum. It healed rapidly under treatment by large doses of iodide of potassium, the patient taking 90 grains in the 24 hours for several weeks together.

Bordenave ('Mémoires de l'Académie de Chirurgie,' t. xiii, p. 53; édit. in 12mo.) saw a man whose facial bones were swollen and carious by a venereal disease. The antrum was exposed at its upper and outer part, and its interior suppurating. In spite of the unfavorable situation of the aperture, and without any local treatment, mercurial inunction sufficed to bring about a complete cure.

(*To be continued.*)

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 405.)

On the Retarded Eruption and the Absence of Permanent Teeth.

Although the usual period for the eruption of permanent teeth may have long passed over, we have no reason to infer that the missing tooth or teeth have not been developed; indeed, in every case that has come under my observation, as far as the twenty-eight teeth of the second set are concerned, I have never been able to do more than demonstrate that the eruption of one or more teeth has been retarded. Different individuals may vary as to the time of cutting, and although the molars are the most regular in their appearance, still they may deviate to the extent of fourteen or sixteen months or even longer. We find in some families an hereditary predisposition to cut the teeth of the permanent set in a particular order, the bicuspids, for instance, coming soon after the eruption of the incisors. We also find an hereditary absence of particular teeth, the lateral incisors, for instance, not appearing until late in life and indeed sometimes not appearing at all until hastened by the wearing of a piece of mechanical work.

The non-appearance of permanent teeth may be owing to some obstacle standing in the way, the teeth already cut having taken up the position the later ones should occupy, although this does not occur very frequently, for when a tooth is fully developed it will generally make for itself an outlet either inside or outside the circle. We may also have some retarding influence such as the health of the patient, but it is at all times difficult to decide what that retarding influence is. For cases will occur where none of these conditions present themselves, where some teeth are fully erupted and where there is plenty of room for the others to follow, and yet the expected tooth or teeth do not make their appearance. In writing these notes I am desirous of keeping strictly to personal observations, citing only those cases that have occurred in my own individual practice, and, in order to avoid as much as possible entering into unnecessary 34 detail, I have confined myself to one or two well-marked illustrations. I cannot say whether the conclusions I arrive at are always correct ones, but they appear to me to be fairly carried out by the cases cited.

In the generality of instances where teeth absent themselves they do so in pairs, and when later in life the one is erupted the companion tooth will generally follow. One of the most fruitful causes to my mind of retarded eruption of permanent teeth is the early extraction, or the loss by other means, of the temporary teeth. Where the deciduous teeth have been accidentally knocked out the eruption of the permanent tooth is generally delayed. I will cite a case that occurred in my own family as an illustration. 1

At the age of sixteen months a child had a fall, caught her mouth upon a projecting edge and knocked out the two superior centrals and one lateral incisor. At first an attempt was made to replace the teeth, but the patient being so young it was found to be impracticable. The child suffered little more than the discomfort attendant upon the absence of the teeth, and no notice was taken of the loss until she arrived at that age when the central incisors of the second set are usually cut, between the seventh and eighth year; but they did not make their appearance, and it was not until the child had completed her eleventh year the teeth were erupted, and even then the two centrals were stunted and the lateral deformed, the enamel being deeply indented on the one side, which indentation has since shown indications of disease and had to be filled. The other teeth in the head are normal in size and very fairly organized.

That the temporary teeth may be extracted without occasioning any reduction in the ultimate size of the jaw I think we have plenty of evidence to prove, but the early loss of these deciduous teeth to my mind is a fruitful source of irregularity in the coming set. Not only do we lose the directing agent which in many instances guides and controls the coming tooth, but we give the advancing organ increased labour, the bone has to be absorbed and the place which should have been reserved for it is already occupied. This is 35
particularly observable when at an early date, owing to the crowding of the centrals, the temporary eye tooth is sacrificed, a practice I greatly object to. The permanent canine is compelled to take a position outside the circle or so far in the palate as to seriously affect the articulation.

W. W—, a boy, æt. 8, was brought to me after having had all his temporary teeth removed. The only teeth standing when I first saw him were the four anterior molars, the four superior and the four inferior incisors, all of the second set. The excuse made for this wholesale extirpation was that some of the teeth were diseased, and as sooner or later he was sure to lose the others the surgeon thought it best to remove the lot. Between the age of ten and eleven the biscuspids made their appearance followed by the posterior molars, but it was not until the boy had arrived at his fourteenth year the canines began to descend in the upper jaw, and there being little or no space reserved for them they took up their position inside the circle, and eventually a biscuspid had to be sacrificed on each side and a plate worn to draw the offending teeth into anything like a correct position.

But while it is desirable to retain the temporary teeth as long as we can, cases may occur where the extraction of a perfectly firm deciduous tooth is to be recommended, but as a general rule the removal of a firm first tooth should not be attempted without due examination and much consideration.

Mrs. T—, æt. 26 (whose case I have alluded to at p. 171), retained all her four temporary molars. One of them being slightly elongated, although perfectly firm, I advised its removal, but up to the present period, over four years, the bi~~s~~cuspid has not made its appearance nor is there any sign of it, and the loss of the deciduous molar is greatly to be regretted.

The retarded eruption of a tooth may also be occasioned by disease in and consequent inflammation caused by a first tooth. The following case I think possesses considerable interest, and it is the only one I have ever met with similar in character.

W. G. W—, a boy, æt. 11, cut his second set in regular order, the teeth being large, evenly arranged, and perfectly healthy. The only two of the first teeth remaining at this period in his head were the canines, one of which, the left, was very much decayed, but it had never given any pain. Suddenly, while in the country, he was seized with toothache which was rapidly followed by a severe attack of erysipelas lasting for about three or four days; tepid poppy fomentations were applied and the inflammatory symptoms quickly subsided. Upon the youth coming to town I examined the tooth, and finding it externally decayed, I removed it. This is nine years ago, and up to the present time the permanent canine has not made its appearance. All the other teeth are fully developed, perfectly sound, and the corresponding tooth on the opposite side thoroughly erupted. For the last two years an artificial canine has been worn, but there is no sign of the missing tooth making its appearance. The temporary eye tooth extracted had a partially absorbed fang, but there was nothing peculiar in its condition nor was its extraction attended with any unusual force, the tooth, indeed, being quite loose. I am fully persuaded that the inflammation arrested the eruption, and that the tooth still lies buried in the socket, for I have seen a perfectly developed canine extracted at the age of fifty that had remained all these years unsuspected, and had never caused the slightest irritation.

We have also good reasons for believing that the crowns of permanent bicuspids are sometimes removed when the temporary molar, which is immediately above it, is extracted; indeed, I once witnessed such an accident and have frequently seen centrals that have been maimed by the careless extraction of the first teeth.

(*To be continued.*)

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

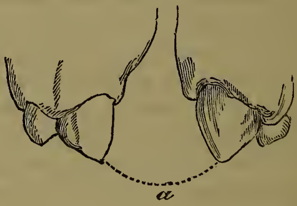
By F. H. Balkwill, Esq., L.D.S., Plymouth.

(*Continued from p.* 367.)

Miss H—, aged about fifteen, had fissure of both hard and soft palate. The fissure passed in a nearly central position between the intermaxillary bones, and the central incisors had never made any appearance. The laterals had been extracted in consequence of malposition. The canines approximated, as shown fig. 18 *a*, and together with the left bicuspid closed within the lower teeth.

Mr. Smith, of London, performed a very successful operation, closing the fissure in the soft and nearly all the hard palate, leaving a gap between the canines which passed into the nasal cavity.

Fig. 18.

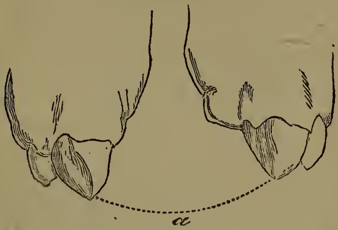


In early life there had been an operation for harelip, leaving the upper lip deficient in substance and flat looking, which made it particularly advisable to expand the arch of the upper teeth so as to give as much fulness as possible to the contour there.

A vulcanite piece carrying two central incisors was made by packing on the model. This was made to act as a regulating frame at the same time. Wedges of compressed wood were driven in between the centrals and the natural canines, when the piece was in place, until a little space was gained, when square-headed pegs of the same material were substituted. At the same time a chamber for the purpose having been formed inside the left bicuspid a piece of compressed wood was placed there which gradually pressed it into the desired position. In about six weeks the three teeth were driven outside the bite of the lower teeth, and the space between the canines had been increased to that in fig. 19 *a*, which was considered sufficient.

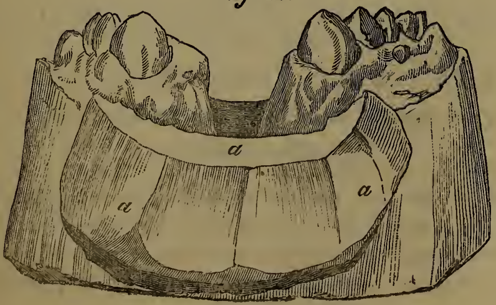
A piece for permanent wear was proceeded with in the following manner:—The four incisors used were vulcanite teeth with porcelain gums. These were fitted on a wax base on the model. This was then tried in the mouth and such alterations made to suit the bite and expression as were necessary. It was very desirable, from the depth and shape of the cleft, to pack the piece on the model, which was done in this way.

Fig: 19.



The wax trial-plate and teeth were replaced on the model. Looking at it in front, teeth uppermost, the crowns of the mineral teeth were highest in the gap, then the mineral gum, and below this, filling up the gap between the oral and nasal cavities, half an inch in depth of wax. Holes and notches were scored in the model around the border of the visible wax, so as to hold fresh plaster. A batter of this, half an inch in thickness, was then poured on so as to cover the wax in front up to the bottom edge of the mineral teeth; here it was left thick and extending half an inch on to the scored surface of the model. (See Fig. 20 *a, a, a.*) In the drawing the teeth and wax have been removed.

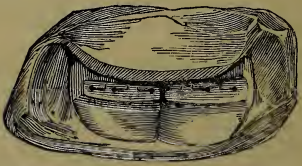
Fig: 20.



When set the plaster was smoothly trimmed and a fresh batter of plaster of similar thickness was poured, so as to cover the whole of the visible portions of the mineral teeth and gums, and brought down flush with the edge of the previous batter and over the faces of the plaster canines. When this was sufficiently set all the wax of the trial plate was removed and washed out with boiling water. The cap of plaster containing the mineral incsiors was now readily removed. (See Fig. 21.) The wall formed by the first batter of plaster remaining in place, as in Fig. 20.

The whole of the plate was now packed with rubber; it extended back as far as the soft palate, and supplied a deficiency caused by the loss of a molar on the left side. A small piece of pumice stone was packed into the fissure for the sake of preventing the thickness of this part making the piece heavy. The vulcanite was packed up to a level with the edge of the wall *a*, Fig. 20. Then the plaster block containing the teeth (Fig. 21) was replaced on the model in its original position, and firmly tied there with twine, whilst more vulcanite was packed around the pins and behind the teeth. The whole was then invested with plaster, flasked, and vulcanised. It has answered very well.

Fig. 21.



(*To be continued.*)

ON CELLULOID.

Abstract of a paper read before the American Dental Convention at Long Branch, August 12*th*, 1875.

By Dr. R. Finley Hunt, of Washington, D. C.

(Reprinted from the 'Pennsylvania Journal.')

(*Concluded from p.* 414.)

We come now to the processes, means, and appliances used for bringing it into the forms and conditions required for our purposes. It comes into our hands in the form of blanks, for full and partial plates. The variety of the shapes and configuration of these blanks is necessarily limited, for it would be impossible to make blanks that would meet all cases presented; therefore they are given to us in such general forms that we can prepare them by cutting, if necessary, to suit each case.

Should a case require a greater amount of celluloid than is to be found in a blank, the latter can be pieced out, using a piece or pieces of the same colour. The surfaces intended to come in contact should be painted freely with a solution of celluloid in spirits of camphor. When properly done the union of the surfaces is perfect. The same plan can be used for repairs.

As it is necessary to heat these blanks to render them sufficiently plastic for moulding, the processes used for heating command the first attention. These may be enumerated as follows:—oil, hot water, steam, glycerine, and dry heat processes. All these processes have for their common object the application of heat to the celluloid. They only differ in the mode of such application and the degree of results produced. The oil, steam, hot water, and glycerine were intended as baths for the celluloid, to avoid the danger of combustion or explosion of so inflammable a substance as nitro-cellulose of any grade was supposed to be. Afterwards the dry heat process was introduced, and shown to be as free from danger of explosion or combustion, if properly conducted, as any of the others, with the exception of hot water, and perhaps of steam.

Without entering into the particular merits of each of these processes, their general efficiency will be noticed with reference to special ends to be attained or conditions secured in a dental plate or other appliance made of celluloid. These conditions are, that the plate or appliance must fit the mouth, must be free from liability to change of shape, and must possess the best degree of strength, elasticity, and hardness of which the material is susceptible. The first of these conditions can be secured by any of the named processess except that of hot water—the possible temperature of this in an open vessel being limited to 212°, while the others can be brought to 400°—600°. The other two conditions are inseparable in celluloid, and can only be secured by the evaporation of the camphor, which has performed its duty of rendering the material plastic. It is very evident that this evaporation will not take place so rapidly or effectually in a bath of oil, hot water, glycerine, or steam, as when heat is applied without their intervention. In the use of any of these processes these combined conditions must be considered as indispensable.

The preparation of cases for moulding is so well known that I will only suggest that care be taken to use plaster that will set hard (Red Beach seems to be the most reliable); that the faces of the mould be freely rubbed with powdered soapstone, by means of chamois skin or other soft material (this prevents the base plate and celluloid from adhering to the cast); and that the modelling composition prepared for taking impressions makes a most excellent base plate. It can be prepared with warm water, a pane of glass for a bed, and a bottle for a roller.

Having the flask all prepared, the operation of moulding is to be carried on, keeping in view three essential points: 1st. To complete the moulding before too much camphor is driven off. 2nd. While doing this, to shape and point the celluloid while hot and soft, so that it will go wherever desired. 3rd. After the moulding is completed, to keep the plate under pressure and exposed to heat till its plasticity is exchanged for a sufficient degree of elasticity. This being done, it is allowed to cool thoroughly before removing from the flask. It is then ready for finishing.

We are again on ground so familiar to the profession that I will only mention some of the means and devices that have been of great service to me in the finishing process. After the plate has been "roughed off" with the knife, scraper, file, or other tool, I prefer to use only wheels, cones, and points made of felt or cork covered with felt or cloth of different degrees of fineness. I take champagne corks, on account of their fine quality, and boil them in water until they resume their original cylindrical form. The cork is then chucked in the lathe and turned down to any shape with sand paper, using first the coarser and then the finer grades. The sand paper is held on the surface of a stick, one end of which rests upon the lathe, in order to give it steadiness and turn the cork true. The turning may also be done with sharp files. A cover of felt or cloth made to fit the cork neatly is tied on by means of a light groove turned for that purpose near the chuck end of the cork.

For rapid cutting, powdered pumice, emery, or corundum is used, mixed with molasses. Care must be taken not to use the molasses too stiff, as it will then gum up the surface of the plate. A trial of molasses in this way will prove its advantages, for, like oil, it holds the cutting or polishing powder to its work, but, unlike oil, the plate can be perfectly cleaned by a few strokes of a brush in water. For polishing, rouge, rotton stone, or whiting is used, first mixed with molasses, and finally dry. From the time that the use of the cutting powder is commenced to the final polish, the pressure of the plate on the wheel should be lessened at each step, until at the end it amounts to a light and delicate touch.

Thus finished, we have a dental plate or other appliance which, to the senses of sight and touch, presents a closer resemblance to the natural tissues than any other substance that has ever been used for these purposes. It is less harsh than any metallic plate, and even than vulcanite, being of a finer texture, and, as compared with that material, it is stronger, tougher, and more elastic, besides being free from the charge of affecting injuriously the mucous membranes of the mouth.

In presenting these remarks to you, it has been assumed, or, rather, not denied, that the celluloid is placed in our hands prepared in the best manner possible to meet our wants and requirements; but this is not by any means the case. It is true that great improvements have been made, and it is now far better than it was two years ago. But there are still important and even necessary improvements to be made. To one who has studied this matter as closely as I have, the imperfections and defects are patent and the remedies are plain.

Let us hope that in the future our just claims and requirements will be more regarded, and that these defects and imperfections, as well as other causes of complaint, will be remedied in the preparation and supply of celluloid for the purposes and use of our profession.

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From July 1st to July 31st, 1876.

Extractions	Children under 14	389
	Adults	706
Under Nitrous Oxide		200
Gold Stoppings		147
White Foil ditto		65
Plastic ditto		340
Irregularities of the Teeth treated mechanically		16
Miscellaneous Cases		176
Advice Cases		122
Total		2161

James Merson,
Dental House-Surgeon.

British Journal of Dental Science.

LONDON, SEPTEMBER, 1876.

In consequence of the sudden severe illness of the Editor, our readers must excuse any short-comings in the present issue, and the absence of an Editorial article.

Literary Notices and Selections.

OXYCHLORIDE OF ZINC.

By F. M. Dixon, D.D.S.

Read before the Odontographic Society of Pennsylvania.

(Reprinted from the 'Dental Cosmos.')

(*Continued from p.* 436.)

The first evidence, to my mind, that oxychloride of zinc, carefully used, was not inimical to pulp life was presented in a very singular manner, an account of which will include a history of the greatest blunder I am conscious of ever having made in the treatment of a sensitive tooth. I have always looked upon the unnecessary destruction of the pulp of a tooth as a very near approach to a criminal act, and have always thought it my duty to do all in my power to maintain, where endangered, the life of a tooth. Yet in the instance alluded to, through ignorance of certain facts in the case, I committed that sin.

It was in the early days of my experimentation with oxychloride of zinc. I had applied it to a very sensitive tooth with a nearly-exposed pulp. The pain for fifteen minutes after the operation was intense, after which the tooth seemed to remain for some months perfectly well; but at the expiration of this time the patient returned in much pain and with symptoms of congestion of the pulp, having no doubt whatever that the pain originated and continued in that tooth.

Being very busy at the time, but anxious for the patient's comfort, I, in my hurry to remove the filling, broke through the very thin layer of dentine that had remained over the pulp, which to my surprise, seemed perfectly free from any appearance of disease whatever; yet there it was staring me in the face, bleeding slightly, and as the patient thought, aching furiously.

Having suffered greatly from the effects of decaying teeth and their careless treatment, he was naturally very impatient, but manifested every symptom of genuine suffering. I had at that time no faith whatever in my ability or in that of any one else to restore to its normal condition an exposed pulp. With a hope of relieving him immediately from suffering, I applied arsenical paste, but twenty minutes passed without bringing the slightest relief, and the patient went home to bear the pain until the pulp should be devitalized. On his return the next day I found to my mortification that he had been suffering ever since, or with only occasional intermissions of a few minutes' duration.

I had not been in the habit of resorting to systemic treatment in such cases, and in this instance there was not the slightest indication of its need, nor was there such need, as the sequel will show.

Being completely mystified at the continuance of pain, even after removal of the pulp, which I now found devitalized, I for a second time commenced searching for its cause elsewhere, thinking it possible that the trouble really arose from another tooth; I say a second time, for I had the day before thought of this possibility, and made every effort to discover the truth.

There was on the first day of his call no soreness in any of the teeth; there was no apparent change of color; in fact, no possible indication anywhere (excepting the pain) of a dying tooth, and that pain the patient persistently declared to be in the tooth described. On this occasion, however, I found upon percussion that there was decided soreness; not, however, in the second molar (from which the pulp had just been extracted) but in the adjoining third molar. In this there were three, if not four, fillings: on the mesial, distal, grinding, and—I think—the buccal surface. The front and rear fillings were large (not very large, however), nor had I feared for the safety of this tooth when filling it a few weeks previously; but now—as you will readily suppose—my suspicions were aroused (although it is not uncommon to find one tooth sore depending upon severe inflammation or congestion in an adjoining one). The front filling in this case was well up in the neck of the tooth. Remembering all about it, I now forced the blade of a sharp hatchet excavator under the cervical edge of the filling, and soon succeeded in removing it bodily, when the whole mystery was solved, for the odour of a recently dead or dying pulp, which we all know so well, immediately saluted my nostrils. The pain was all gone in a moment, and when—five minutes later—the patient took his departure he was happy; far more so than I was in the thought of having *unnecessarily* destroyed the pulp of a tooth. Unnecessarily I am sure, for I am convinced that were the patient yet living, the pre-described pulp and tooth would both—having had proper care in the interim—have been in a sound condition to-day, had I left the oxychloride of zinc undisturbed where in good faith I had placed it, though so near the pulp that the thickness of dentine between them would be fully described by the thickness of the sheet on which I am writing.

I am morally certain that in no other case to which I have applied it has it caused the death of a single tooth, though many of them have been as sensitive as any I have ever filled; with pulps almost, although not absolutely exposed, too nearly so to fill with gold without the intervention of a non-conducting substance.

In cases not a few I have packed this material right into the cavities without any intervening protection; in some, for a specific purpose, it was placed very soft,—about the consistency of thin mortar,—pushed before a piece of spunk (as practised by my friend Dr. Boudrias de Morat), followed rapidly as possible by a quickly-mixed portion, dry as could be worked.

This practice, however, in many cases of exalted sensibility, would be unadvisable—might be reprehensible.

When practicable, the whole mass should be used about as stiff as glaziers' putty, at least, for the less of the chloride used in the filling the more quickly and the harder it will set. The more instantaneously the mass is forced into the cavity after mixing the better, ere the slightest approach to the process of hardening has taken place; for if, after that process has commenced, the particles are disturbed, the hardening will be retarded, and in the end will be much less perfect. "Is it possible," said one in debate upon this subject not long since, "that a tissue so delicate as pulp will tolerate an agent so strong as chloride of zinc—an agent which is used to destroy other tissues?" Doubtless a similar impression upon the minds of many prevents their using it where it would render invaluable service if used with judgment, care, and skill. Permit me here to remind such persons that there is not a poison known which is not also used as a medicinal agent,—arsenic, morphine, even corrosive sublimate,—but used, like oxychloride of zinc, under very different circumstances, and in a widely different manner. The subject is too broad in its proportions for discussion here, and is well understood by most of you; a mere reference, therefore, must serve to illustrate the point I would make.

If I wished to destroy a pulp with oxychloride of zinc, I would make my application in such manner as to secure, rapidly as possible, its absorption into the tissue. But if my object should be its salvation, I might possibly resort to the same agent, but using it in so different a manner as to produce the desired result. If I first mix it with the oxide in proportions that will make a paste so thick that I must work it with great rapidity in order to fill the cavity thoroughly ere it begins to set, I do not apprehend that the processes of endosmosis and exosmosis are sufficiently active to carry into the pulp a perceptible particle of the chloride which might for an instant be freed. Indeed, the supposition from my own experience would be the reverse, as I have rarely known any considerable pain to attend its application, when thus made, to the most sensitive tooth. If it were possible so delicately to place it in actual contact with the pulp as not to press thereon, I should fear no mischief, for I am much mistaken if the very small quantity that could by any possibility reach the exceedingly small exposed surface, if applied as suggested, would not have a beneficial or healing effect. The fact that to gorge the pulp with chloride—of almost anything—would *kill* by *drowning* the poor maltreated thing is no evidence whatever that the one-thousandth part of a drop, reaching its outer surface at a point no larger than the eye of a mosquito, through the medium of a filling properly inserted, would either kill or disagree with it. Moreover, I have occasionally, and for a specific purpose (again where the pulp was so nearly exposed as to render it exceedingly uncertain whether there was not a minute opening into the cavity), inserted the first portion as thin as thick cream, then packed with great rapidity the balance dry as as possible; by this means securing a thorough adaptation to the walls of the softer part, rapid absorption of the chloride into the dryer oxide immediately following, and at the same time avoiding any considerable flow of the chloride into the pulp-cavity. I believe that the affinities existing between the two zinc constituents would bring about, under such circumstances, an instantaneous reflow of the liquid of the first part, from the direction of the pulp, into the dryer material of the second, enabling the operator to fairly mix the compound in the cavity, thereby securing the completion of the process of packing before that of setting or crystallization has fairly commenced; a very important desideratum to reach; for compounds of this kind, when disturbed after the setting process has started, will not become so hard as if mixed and moulded rapidly, ere that process has had a beginning.

(*To be continued.*)

Miscellanea.

THE DENTAL MANUFACTURING COMPANY, LIMITED.

Annual General Meeting.

The Annual General Meeting of the shareholders of this Company was held at Nelson's Portland Hotel, London, on Monday, August 21st, 1876, D. D. Hepburn, Esq., in the Chair.

The Chairman, in opening the proceedings, expressed his pleasure at meeting the gentlemen present, some of whom had travelled a long distance to be with them, and after referring to the several matters that he would have to bring before them, said, that with their permission they would take the balance sheet as read, and that he would call upon the Secretary to read a comparative statement between this and last year's accounts, which he believed would assist them to better understand their real position.

After this had been read, the Chairman remarked upon the very favorable condition of the Company, and said it would be seen that good work had been done during the past year, the list of members had increased some 50 per cent., and the business of the Company had increased over 10 per cent. It would be a source of congratulation to them all to find the Company so satisfactorily established in London, their facilities for manufacture had thereby been materially increased, and they might reasonably look forward to a further extension of their business; their manufactures were receiving high commendation on all sides, and he could assure them that it was the aim of all those concerned in the production to strive for excellence. With reference to the expenses, it would be seen that they had also an increase in these, consequent upon the London purchase and the conducting of business at the two houses; he would also mention that the whole of the cost of alterations to the premises in London had been charged in the accounts before them.

They would notice on the balance sheet that Mr. Crapper is a creditor for the amount of London purchase. The Chairman here explained that he attended in London with Mr. Brierley, Mr. Crapper, and the Secretary, for the purpose of negotiating with the holders of the property, but found that the lawyers preferred dealing with a private individual to a limited company; whereupon Mr. Crapper kindly came forward, and assisted by the Secretary, treated for the property and business, and after tedious and lengthened negotiations, extending over several weeks, completed the purchase on behalf of the Company, very much, he might say, to the satisfaction of the Board, and he hoped to the satisfaction of the shareholders. The Chairman then proposed the adoption of the report, which recommended out of the net profits a dividend for the half year ending June 30th, 1876, at rate of 10 per cent. per annum, and the following deductions of 10 per cent. from goodwill, 5 per cent. from plant, and that £250 be carried to the reserve fund, the balance being brought forward to the credit of next year's accounts.

Mr. CRAPPER seconded the adoption of the report, and remarked that he had the utmost confidence in the success of the Company, and he also felt confident that the step they had just taken, viz. to establish themselves in London, would prove to be a step in the right direction. He likened it to a coal proprietor sinking an extra shaft; a very expensive operation at first, but one absolutely necessary to enable him to reach the hidden treasures.

After some remarks from Mr. Wormald, Mr. Bacon, and others, the Report was unanimously adopted.

The election of officers was then considered. The CHAIRMAN said that Messrs. Brierley and Mawson were the retiring Directors, and that there were five gentlemen offering themselves for the vacancies on the Board.

The Ballot was taken, and the result proved to be in favour of Mr. D. A. Wormald and Mr. E. Pierrepont; the CHAIRMAN therefore declared those two gentlemen duly elected as Directors.

Mr. OAKLEY COLES then proposed a vote of thanks to the retiring Directors, and pointed out the great obligation that the shareholders were under to their Directors for the very able manner in which they had discharged their duties, remarking at the same time upon the powerful influence for good that the Company might be expected to exert upon the general body of Dental practitioners throughout the country.

The resolution was warmly seconded by Mr. MACLEOD, of Edinburgh.

Mr. HEPBURN (the Chairman), in reply, said he felt a great interest in the Company, believing with Mr. Oakley Coles that it had a powerful influence for good; and he was glad to see many of his friends were becoming members; and he was sure many others would join them when the principles of the Company were more widely known. One of the original objects of the *promoters* was to prevent that wholesale creation of Dentists which was so detrimental to the interests of the profession, and in this particular he believed the Company by its united influence had done much good. In acknowledging on behalf of the Board the vote of thanks accorded to them, he would say that it was very gratifying to hear their services referred to in the language used by Mr. Coles and Mr. Macleod; and he could assure them that the knowledge that their services were appreciated by the body of shareholders was most encouraging.

A vote of thanks proposed by the CHAIRMAN, seconded by Mr. Crapper, and supported by Mr. Macleod, of Edinburgh, was cordially given to the Secretary for the earnestness and energy he had displayed in the service of the Company during the past year.

The election of Auditor then took place, when Mr. J. W. Davidson was re-appointed Auditor for the ensuing year.

A cordial vote of thanks to the CHAIRMAN for presiding brought the Meeting to a close.

A number of the Members dined together at the Hotel in the evening, including, amongst others, Messrs. D. D. Hepburn, Oakley Coles, Macleod (Edinburgh), D. Wormald, D. Cormack, J. S. Crapper, Bacon, Vanderpant, Ball, Mawson, &c. &c.

EXTRACT FROM VERNON GALBRAY.

CHARLATAN BOOK-MAKING.

"A BOOK to serve the purpose you require as an advertisement," the gentleman appealed to, began, "must have first of all a good, sounding name. 'What the Dentist can do for us,' is the title I propose, but of that we can speak hereafter. Your name should also have attached to it some degrees and appointments."

"I am afraid there vill be some difficulty about that," Galbray remarked.

"None in the least, as our friend Mangle here will tell you. You have already got a purchased diploma, and your appointments are just as readily found. There are about London numbers of dispensaries that you can get the appointment of Surgeon-Dentist to, I grant you that the services of a Dentist are never required, but the public know nothing about that."

. . . . . .

"Now," continued Mr. Wangly, "we come to the book itself, and let me here assure you that the success or failure of the whole thing will depend upon your preface. Nine out of the ten of those who look at the little volume will not go beyond the preface, and you may rest assured that the gentlemen who favour you by reviewing it, will not trouble themselves with more than a page of even that. You must therefore commence by at once fixing the attention of the reader, and letting him know what an honorable and liberal man you are. You must deplore the amount of charlatanism in the profession—the number of unqualified members in its ranks, and the danger the public incur from having recourse to these quacks. You cannot too strongly condemn their practices, or lament in too forcible language their want of principle. You will thus be received by the newspapers as a benefactor, and in their reviews (which you will be able in most instances to write yourself) they will dilate upon the way in which you have tried to put down claptrap, ignorance, and humbug. As regards the surgical part of your book, that you can get written by the yard."

In this manner Galbray's new friend entered into the whole history of charlatan book-making, and the better to illustrate his meaning, exhibited several works already published and circulated by hundreds of thousands.

They were most of them a repetition of the same set phrases, and differed but little in their general tone. They purposely avoided giving any useful information, and were written solely for the purpose of drawing the unwary into the writer's clutches. In one particular, however, they were all alike. The greater the amount of rascality in the author's actual proceedings, the louder he boasted in his book of the purity of his intentions; and the more he warned the public against humbugs, charlatans, and their practices the more assiduously did he himself carry out those deceptions.

It was quickly arranged that Mr. Wangly should write Mr. Galbray a book, but the conference did not end here. Other modes of advertisement were discussed, and Mr. Wangly finally suggested that, by judicious management, the Government might in time be got to consent to the exhibition of show pieces and cases of artificial teeth even in the British Museum and the National Gallery.

Mr. Galbray pricked up his ears at this, but appearing incredulous that such a privilege would ever be granted, Mr. Wangly gave him his reason for believing otherwise:

"Already," he said, "the Museum at Kew Gardens has been turned into an exhibition of Dental appliances. Show-cases are there exhibited, and attached to the work is the name and address of the maker. Surely there is but little difference between one national property and another. It is true the sets of teeth are supposed to illustrate the uses to which hardened india rubber can be applied; but why attach the name and address of the maker, unless as an advertisement? The pill and lotion concocters have just as good a right to do the same, for many of the trees grown in the conservatory contribute the drugs they are accustomed to employ."

THE BRITISH ASSOCIATION AT SHEFFIELD.

At a Meeting of the British Medical Association held at Sheffield, the following objects were exhibited by Dr. Merryweather, of Sheffield, in the museum of the Association:

Necrosis of Superior Maxilla, right side, age five years. Had smallpox, but never been vaccinated.

Two Inferior Dentes Sapientiæ, producing spinal irritation and great constitutional disturbance.

Three Superior Four-fanged Dentes Sapientiæ.

Caries produced by polypi.

Calcareous Deposits on Teeth.

Mr. Jonathan Hutchinson also exhibited a case of Chancre of the Finger. The patient, a Dentist, inoculated his finger by scratching it against a tooth. It had been present a month at date of drawing, and he had then a copious rash. Date of contagion not known.

APPOINTMENT.

Drury, Mr. R. M., has been appointed Surgeon Dentist to the Royal Infirmary for Children and Women, Waterloo Road, vice Roberts deceased.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

CAN WE CHECK THE SPREAD OF DENTAL EMPIRICISM?

To the Editor of the 'British Journal of Dental Science.'

Sir,—Several letters have been published in late numbers of your Journal expatiating upon the practices of that class I would call by their generic name "Gutter Dentists." Not only do they infest every part of the provinces, but they also abound in this great metropolis, and a feeling appears somewhat to have sprung up that the "London men cannot feel the same interests in stamping out quackery" as those in the country do. I am convinced that the gentlemen with whom I am permitted to associate feel the deepest interest and evince the heartiest desire to expose and put down empiricism in every form. The only question upon which we differ is, *How best to do it?*

The letters signed "Pro bono publico," "Senex," and "Urtica," expose a state of things that cannot calmly be submitted to, and if in any other class of manufacture similar frauds were committed as those mentioned by your correspondents—the substitution of brass for gold—the public would be up in arms to denounce the imposition. But it appears that any description of swindle can be safely carried on in Dental matters without protest or hindrance. Have we any remedy for this crying evil? I think that we certainly have, and I can only repeat what I have so often said before. Educate the public to understand what is meant by the words "disreputable quack," and do not allow the "whole profession to rest under a stigma from the faults of the few."

Every one must be aware that the writing of any number of letters or leading articles in the Dental or the medical journals can do but little good, as they are principally read by members of the Dental or the medical profession, well acquainted with the present state of things. It is to the public, and to the public alone, we must appeal, and the only question we have now to ask is, *How* successfully to do so?

"Urtica" pleads for legislation, and his letter is well worth careful perusal. "Senex" advocates the formation of a society "which shall take cognizance of the doings of such rascals," and all acknowledge that if the profession were better understood the "Gutter Dentist" would be held in fear and avoided as a pestilence.

Perhaps I have had as good an opportunity of considering this question in all its bearings as any members of the profession, and I am not ashamed to say I take a great interest in it; and as my experience may be of some use to those who are trying to check the spread of empiricism, I take the liberty of calling your attention to the history of my book published a year ago, entitled 'Vernon Galbray.' Its aim, as you know, was "to expose the disgraceful frauds practised upon the public by the horde of charlatans who call themselves Dentists." Prior to the publication of this little volume I addressed a letter to the profession anonymously, stating that it was issued for the purpose of "eliciting the feeling of the profession on this important subject." I explained that I intended to bring out a further issue with additional matter, and that the profits were to be expended in advertising the book, not in London only, but also in the country. To this letter I received through my publisher 107 replies. All my correspondents applauded the object I had in view, but doubted my power to carry it out. Many suggested that the profession should take a certain number of copies for free distribution, but the book being published at a price that left no margin of profit the greater the circulation—if properly advertised—the greater the personal loss to the author, but this I was willing to meet. The book being published anonymously I had no expectation of gaining fame—even if it merited praise—by its publication. There is no doubt if I had shown a little less delicacy, and if I had affixed my name to the volume and published it at a price that would pay for advertising, both the public and the author would have been better served. The Dental profession looked upon the volume with suspicion, and the general reviewer could hardly receive with favour a work that criticised the proceedings of his own class so severely, quite forgetting that it was only a certain section of itinerate penny-a-liners I attempted to censure. The newspaper proprietor saw that the volume tried to deprive him of a portion of his income—the advertisements—unmindful that the author's only complaint was the introduction of leading articles praising certain charlatans and trying to make it appear that these articles emanated from the editorial staff of the paper. Still, standing as I did on dangerous ground—an anonymous author—its reception was most favorable. I was told that the book "would be read with great satisfaction," "that the striking statements made were scarcely in excess of the truth," "that it would secure and interest a large number of readers," "that the author's object was a laudible one, and that it rested with the public to complete the work of eradication."

At this period the book got over to America and was reviewed there, and an attempt was made to saddle its authorship upon a perfectly irresponsible individual. What could I do? I was forced to acknowledge myself the author and to risk the danger of being charged with having ulterior views. I had succeeded in obtaining proofs, and very powerful proofs, that this book is barbed with a sting the empiric cannot resist. I have been threatened, I have been personally insulted, and every means has been taken to try and interfere with the sale of the book. I can without egotism declare that the class it aims at exposing smart under its censure. The appendix alone, and it is my intention to greatly extend it, if properly circulated must disarm the advertiser; for would any man be such a fool as to consult these "disreputable snobs" after reading the well-authenticated records of their proceedings?

"Empiricism such as he describes," says the 'Lancet' in reviewing the book, "is still too prevalent; but its day is passing. It rests with the public itself to complete the work of eradication."

If 'Vernon Galbray' is not sufficient for this purpose let another and a more powerful hand take up his pen, and I for one will welcome the attempt and place my ten guineas towards the object we have all at heart. In the mean time I am prepared to embody any well-authenticated records of the charlatan's proceedings in the appendix, and should be pleased to receive any suggestions calculated to aid in advancing the circulation of the book.

I am, &c.,
FELIX WEISS.

7, Montague Place, Russell Square.

THE DENTAL HOSPITAL OF DUBLIN.

To the Editor of the 'British Journal of Dental Science.'

DEAR SIR,—It may not be out of place for me to refer to the excellent suggestion you make in the concluding paragraph of your admirable leading article in this month's Journal on the establishment of the Dental Hospital of Dublin. I am happy to inform you that the principles which you propound for the guidance of such institutions are entirely in accordance with the views of the founders of our Dental Hospital.

From the inception of the idea of founding this Institution the laws governing the parent establishment in Leicester Square have been carefully kept in view, and we hope the child will, so to speak, follow faithfully in the footsteps of the father; and I trust I am not stating too much when I take upon myself to say that it shall be the desire of our staff to continue to deserve the kind encouragement which has been bestowed upon the undertaking, not only by the heads of the profession, but also by the exponent of their views, the 'British Journal of Dental Science.'

Perhaps I ought also here to state that our contemplated Inaugural Dinner has unavoidably been postponed in consequence of the premises selected for the Institution being for a time in litigation. I am, &c.,

JOHN O'DUFFY, *Hon. Sec.*

Royal College of Surgeons,
Dublin; August 28th, 1876.

ERRATA IN JUNE NUMBER.

Page 319, line 6 from bottom, *for* "the tooth" *read* "the crown of the tooth."
,, line 5 from bottom, *for* "found that the pulp was in a" *read* "found the pulp in a."
,, line 4 from bottom, *for* fluid *read* fœtid.
,, line 3 from bottom, *for* through *read* to.
,, line 2 from bottom, *for* pure *read* solution.
Page 320, line 7, *delete* which.
,, line 10, *for* calcium *read* gelsinum.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.

"E. B."—Thanks for communication and model forwarded. Shall appear in our next issue.

"O. A. F."—Many thanks for paper.

"J. H. PARSONS, Torquay.—Not understood. Paper should have been sent.

Communications have been received from F. H. Balkwill (Plymouth), "Vigilans," James Merson (London), Felix Weiss (London), W. Spencer Watson (London), Andrew Wilson (Edinburgh), "Cupio Scire," Dr. Merryweather (Sheffield), William Henry May (London), W. V. Moore (Plymouth), "J. H.," E. Balding (London), John O'Duffy (Dublin), Octavius A. Fox (Brighton), Dental Manufacturing Company.

BOOKS RECEIVED.

'The Larynx, the Source of the Vowel Sounds.' By Thomas Brian Gunning, New York.

'The Dental Cosmos.'

'Catalogue of the Mignot Pictures, with Sketch of the Artist's Life.' By Tom Taylor, Esq.

'Transactions of the Odontological Society.'

'The Pennsylvania Journal of Dental Science.'

'Report of the Great Northern Hospital, Caledonian Road, N., for the year ending June 30th, 1876.'

'British Medical Association, Forty-fourth Annual Meeting, Sheffield, 1876, Museum Catalogue.'

'Johnston's Dental Miscellany.'

'Transactions of the Illinois State Dental Society, Twelfth Annual Session, held at Galesburg, May 9th to 12th, 1876.'

'Fifteenth Annual Report of the North London Hospital for Consumption and Diseases of the Chest, London and Hampstead.'

'Report of Homes of Hope for the Restoration of Fallen, and the Protection of Friendless Young Women.'

'The Glasgow Medical Journal.'

'St. George's Hospital Medical School Report.'

'The Druggist's Advertiser and Trade Journal.'

'Sussex Daily News.'

'The Western Daily Mercury.'

'Chemist and Druggist.'

'The Students' Journal and Hospital Gazette.'

'L'Odontologia Rivista Mensile sui Progessi della Chirurgia e della Protes Dentale.' Per Luigi Ribolla, Medico-Chirurgo-Dentista, Napoli.

'Le Progrès Médical.'

'The Dental Register.'

'A Protest against the Surrender to Non-members of the Dental Profession of the Right and Duty of deciding upon the fitness of the Faculties of Dental Colleges.' By Thomas Brian Gunning.

'On the Physiological Action of the Muscles concerned in the Movements of the Lower Jaw.' By Thomas Brian Gunning, M.D.

'Stocken's Model Register.'

DENTAL STUDENTS' SUPPLEMENT.

SEPTEMBER, 1876.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

REGULATIONS *relating to the Diploma in Dental Surgery.*

EDUCATION.

Candidates are required to produce the following Certificates:—

1. Of being twenty-one years of age.
2. Of having been engaged during four years in the acquirement of professional knowledge.
3. Of having attended, at a School or Schools recognised by this College, not less than one of each of the following Courses of Lectures, delivered by Lecturers recognised by this College, namely:—Anatomy, Physiology, Surgery, Medicine, Chemistry, and Materia Medica.
4. Of having attended a second Winter Course of Lectures on Anatomy, or a Course of not less than twenty Lectures on the Anatomy of the Head and Neck, delivered by Lecturers recognised by this College.
5. Of having performed Dissections at a recognised School during not less than nine months.
6. Of having completed a Course of Chemical Manipulation, under the superintendence of a Teacher or Lecturer recognised by this College.
7. Of having attended, at a recognised Hospital or Hospitals in the United Kingdom, the Practice of Surgery and Clinical Lectures on Surgery during two Winter Sessions.
8. Of having attended, at a recognised School, two Courses of Lectures upon each of the following subjects, viz.:—Dental Anatomy and Physiology (Human and Comparative), Dental Surgery, Dental Mechanics, and one Course of Lectures on Metallurgy, by Lecturers recognised by this College.
9. Of having been engaged, during a period of not less than three years, in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent Practitioner.
10. Of having attended at a recognised Dental Hospital, or in the Dental Department of a recognised general Hospital, the Practice of Dental Surgery during the period of two years.

N.B. The students of the London Schools are required to register the above Certificates at this College; and special Returns will be required from the Provincial Schools.

NOTE.—All Candidates who shall commence their Professional Education on or after the 1st of October, 1877, will, in addition to the Certificates enumerated in the foregoing clauses, be required to produce a Certificate of having, prior to such commencement, passed the Preliminary Examination in General Knowledge for the Diploma of Member of the College or an Examination recognised as equivalent to that Examination.

Candidates who were in Practice as Dentists, or who had commenced their Education as Dentists prior to September, 1859—the date of the Charter—and who are unable to produce the Certificates required by the foregoing Regulations, shall furnish the Board of Examiners with

*A Certificate of moral and professional character, signed by two Members of this College,**

together with answers to the following inquiries:—

Name. Age. Professional Address.

If in practice as a Dentist, the date of the commencement thereof.

Whether Member or Licentiate of any College of Physicians or Surgeons of the United Kingdom; and, if so, of what College.

Whether Graduate of any University in the United Kingdom; and, if so, of what University; and whether Graduate in Arts or Medicine.

The date or dates of any such Diploma, Licence, or Degree.

Whether Member of any Learned or Scientific Society; and, if so, of what.

Whether his Practice as a Dentist is carried on in connection with any other business; and, if so, with what business.

Whether, since September, 1859, he has employed Advertisements or public Notices of any kind in connection with the practice of his Profession.

The particulars of Professional Education, Medical or Special.

The Board of Examiners will determine whether the evidence of character and education produced by a Candidate be such as to entitle him to Examination.

EXAMINATION.

The examination is partly written and partly oral.

The written examination comprises General Anatomy and Physiology, and General Pathology and Surgery, with especial reference to the practice of the Dental Profession.

The oral practical examination comprises the several subjects included in the curriculum of professional education, and is conducted by the use of preparations, casts, drawings, &c.

Members of the College, in the written examination, will only have to answer those questions set by the Section of the Board consisting of persons skilled in Dental Surgery; and in the oral examination will be examined only by that Section.

A Candidate whose qualifications shall be found insufficient will be referred back to his studies, and will not be admitted to re-examination, within the period of six months, unless the Board shall otherwise determine.

Examinations will be held in January and June.

The fee for the Diploma is Ten Guineas, over and above any stamp duty.

NOTE.—*A ticket of admission to the Museum, to the Library, and to the College Lectures, will be presented to each Candidate on his obtaining the Diploma.*

EDWARD TRIMMER, *Secretary.*

16TH MARCH, 1876.

BOARD OF EXAMINERS IN DENTAL SURGERY.

THE Board consists of six members elected by the Council for five years, viz., three members of the Court of Examiners of the College, and three other gentlemen skilled in Dental Surgery. This Board conducts the examination of Candidates for the diploma in Dental Surgery of the College.

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* N.B. In the case of Candidates in practice or educated in Scotland or Ireland, the Certificate of moral and professional character may be signed by two Licentiates of the Royal College of Surgeons of Edinburgh, or the Faculty of Physicians and Surgeons of Glasgow, or of the Royal College of Surgeons in Ireland, as the case may be.

The following is a list of the Board as at present constituted:

Fredk. Le Gros Clark, Chairman, 14, St. Thomas-street, E.C.
William Scovell Savory, 66, Brook-street, W.
John Birkett, 59, Green-street.
Samuel James Augustus Salter, 17, New Broad-street, E.C.
Thomas Arnold Rogers, 23, Endsleigh-street, W.C.
Henry John Barrett, 42, Finsbury-square, E.C.

THE DENTAL HOSPITAL OF LONDON AND THE LONDON SCHOOL OF DENTAL SURGERY, LEICESTER SQUARE.

If the foregoing Curriculum be examined, it will be seen that the subjects embraced in it may be arranged under two heads, viz., those which are common to a general Medical education, and those which pertain specially to Dental Surgery.

It has been felt by the founders of the London School of Dental Surgery that the opportunities afforded to the Student at the existing Medical Schools and General Hospitals, for the acquirement of a knowledge of those subjects embraced in an ordinary Medical education, could not be equalled by a special School. While, on the other hand, the opportunities offered by a special School in connection with the Dental Hospital for the instruction of Pupils on the subjects which specially relate to Dental Surgery, would be much greater than could be secured in an institution devoted to general Medical education.

Hence in the formation of the London School of Dental Surgery, provision has been made for teaching those branches of science only which pertain specially to Dentistry; and the School has been organised in connection with the Dental Hospital of London, in order that practical instruction in subjects specially pertaining to Dental Surgery may be accompanied by systematic teaching, under the conditions enjoined by the Curriculum.

The Hospital was opened on Monday, October 3rd, 1859, for the reception of pupils, who receive practical instruction from the Dental Officers, and, when sufficiently advanced, are entrusted with the treatment of cases.

The Lectures on the subjects specially pertaining to Dental Surgery (excepting those upon Mechanical Dentistry) and Metallurgy are given during the Summer Medical Session, in order that Students may be at liberty to attend at any of the existing Medical Schools those lectures enjoined by the Curriculum upon subjects which are not peculiar to Dental Surgery.

DENTAL HOSPITAL.

Dental Officers, and the days and hours of Hospital attendance.

Consulting Physician.

Sir Thomas Watson, Bt., M.D.

Consulting Dental Surgeons.

Mr. Samuel Cartwright. Mr. John Tomes, F.R.S.

		Dental Surgeons.	*Assist.-Dental Surgeons*
9 a.m.	Monday ...	Mr. Charles James Fox...	Mr. Henry Moon.
„	Tuesday ...	„ Thomas Underwood ...	„ A. George Medwin.
„	Wednesday	„ George Gregson	„ David Hepburn.
„	Thursday	„ Alfred Coleman	„ Edwin F. Lane.
„	Friday......	„ T. H. G. Harding	„ Wm. P. Bartlett.
„	Saturday...	„ Alfred Hill	„ S. H. Cartwright.

Anæsthetists.

Mr. Bailey	Monday.
Mr. Clover	Tuesday and Wednesday.
Mr. Braine	Friday and Saturday.

Dental House-Surgeon.
Mr. James Merson.

Assistant Dental House Surgeon.
Mr. M. L. Bell.

DENTAL SCHOOL.

SUMMER SESSION.

Dental Anatomy and Physiology (Human and Comparative).

Mr. Charles S. Tomes, M.A., M.R.C.S., L.D.S.

These lectures will be delivered on Wednesdays and Saturdays, at 8 o'clock a.m., during the months of May, June, and July.

The course will be illustrated by Preparations, Diagrams, and Microscopical Specimens; at the conclusion of the formal lectures practical demonstrations will be given to those students who may desire to attend them.

Dental Surgery and Pathology.

Mr. S. H. Cartwright, M.R.C.S., L.D.S.

These lectures will be delivered on Tuesdays and Fridays, at 8 o'clock a.m., during the months of May, June, and July.

Recent Specimens, Preparations, Models, Drawings, etc., will be used to illustrate the lectures.

WINTER SESSION.

Mechanical Dentistry.

Mr. J. S. Turner, M.R.C.S., L.D.S.

These lectures will be delivered on the evenings of Wednesday, at 7 o'clock, during the months of October, November, and December.

Metallurgy in its application to Dental Purposes.

Mr. G. H. Makins, M.R.C.S., F.C.S.

These lectures will be delivered during the months of October and November, on Tuesdays and Fridays, at 6.30 o'clock p.m., until the conclusion of the course.

The Metals, Alloys, and compounds more particularly relating to Dental practice will be fully treated of, both by Metallurgic and Chemical processes.

FEES.

GENERAL FEE FOR THE SPECIAL LECTURES REQUIRED BY THE CURRICULUM.

Two Courses on Dental Anatomy „ Dental Surgery „ Mechanical Dentistry One course of Metallurgy	£15 15
Fee for the Two Years' Dental Hospital Practice required by the Curriculum	£15 15

FEES TO SINGLE COURSES.

Dental Anatomy and Physiology, one course	£3	3
„ „ two courses	5	5
Dental Surgery, one course	3	3
„ two courses	5	5
Dental Mechanics, one course	3	3
„ two courses	5	5
Metallurgy, one course	3	3
„ two courses	5	5

Fees for two years Lectures, Dissections, &c., at a General Hospital (as required by the Curriculum) average from £40 to £50, and the fee for the Diploma at the College of Surgeons is £10 10s. A Scholarship in Dental Surgery and several prizes are open for competition.

Students who perform operations for filling teeth must provide their own instruments for the same.

Further particulars may be obtained on application to the Treasurer, Mr. S. Cartwright; or to the Dean, Mr. T. F. Ken. Underwood, at the Hospital.

Rules and Regulations to be observed by Students of the Dental Hospital.

1. Students entering the practice of this Hospital shall (unless exempted for special reasons) do so upon the understanding that it is their intention to obtain the Dental Diploma of the Royal College of Surgeons of England. Before commencing their course of Studies they must sign their names as willing to conform to this rule and the following regulations.
2. Students must attend the Hospital daily (except Sundays) at 9 o'clock a.m., and upon entering the Hospital must sign their names in the Attendance Book. The attendance of Students will be submitted monthly to the Medical Committee, and no Schedules will be signed unless their attendance on Hospital Practice and at Lectures has been satisfactory.
3. No Student shall, unless specially authorised, undertake any operation during the first two months of his Hospital Practice. When permitted to undertake operations for filling teeth, he must provide the instruments requisite for the same. For all cases of gold filling, permission must be obtained of a Medical Officer.
4. No Student shall, under any circumstances, receive fee or remuneration from any patient attending, or to whom he may have become known whilst attending the Hospital, and no mechanical work in the form of artificial teeth shall be supplied to a patient by a Student of the Hospital.
5. Students must be punctual in their appointments with Patients; when otherwise, cases previously under their care will be entrusted to other Students by the Medical Officers.
6. No Student shall make use of the same Operating Chair for Patients consecutively, whilst other Students are unoccupied for the want of the same.
7. All instruments and appliances the property of the Hospital shall, after having been used by a Student, be returned cleansed to their proper places.
8. Students must consider themselves strictly under the control of the Medical Officers of the Hospital. All unnecessary conversation must be avoided, and quietude and gentlemanly bearing before the Patients observed.
9. Any exemption from fully carrying out Rules 1, 2, and 3, can only be obtained from the Medical Committee upon grounds that may appear to them good and proper for granting such exemption.

Nitrous Oxide is administered

On Monday, by Mr. G. Bailey	at 9.45
On Tuesday, by Mr. Clover	at 9.45
On Wednesday, by Mr. Clover	at 9.45
On Thursday, by Mr. Alfred Coleman	at 9.30
On Friday, by Mr. F. Woodhouse Braine	at 9.45
On Saturday, by Mr. F. Woodhouse Braine	at 9.45

Qualified Practitioners are admitted to witness the exhibition of Nitrous Oxide on the presentation of their cards to the medical officer of the day.

Students will observe that whilst every opportunity is offered to them at the Dental Hospital of London and the London School of Dental Surgery of complying with the requirements of the curriculum, as far as regards those subjects which specially relate to Dental Surgery, the authorities of those institutions refer to the existing medical schools and general hospitals for the acquirement of a knowledge of those subjects embraced in an ordinary medical education. (See Advertisement.)

DEMONSTRATIONS.

The medical officers will make every effort to give Demonstrations to the junior pupils, on cases selected from time to time, every morning during the Lecture Session; and at the end of the Course those gentlemen who have attended the Demonstrations to the satisfaction of the medical officers will be permitted to perform operations at the Hospital under the supervision of the medical officers and the House Surgeon. Those of the senior students who can spare the time will also be very welcome to attend; but it is requested that the juniors whose names are on the list of the surgeons of the day will be allowed the best places for seeing the Demonstrations.

The Demonstrations will be given on

Monday by	Mr. Fox	at 9.15
	Mr. Moon	at 10
Tuesday by	Mr. Underwood	at 9.30
	Mr. Medwin	at 10
Wednesday by	Mr. Gregson	at 9.15
	Mr. David Hepburn	at 10
Thursday by	Mr. Coleman	at 9.30
	Mr. Lane	at 10
Friday by	Mr. Bartlett	at 9
	Mr. Harding	at 9.30
Saturday by	Mr. Hill	at 9.30
	Mr. Hamilton Cartwright	at 10

The Winter Session will commence on the 4th October with the public distribution of prizes to the successful candidates, at which Sir James Paget, Bart., will preside.

The Medical Officers will commence their Demonstrations on the 5th.

Mr. Turner will give his first Lecture on Mechanical Dentistry at 7 p.m. on the 6th, and will lecture at the same hour on every Wednesday till the end of the course.

Mr. Makins will give his first Lecture on Metallurgy at 6.30 p.m. on the 8th, and will lecture at the same hour on every Tuesday and Friday till the end of the course.

The Dean will be much obliged to gentlemen proposing to attend the lectures if they will either send in their names to him as soon as possible, or if more convenient, to them, if they will give their names to the Hall Porter.

The Dean will attend at the Hospital in the afternoon from 5 to 6 o'clock, from September 25th to October 7th inclusive, and on Wednesday mornings from 9.30 to 10.30, to see gentlemen desirous of entering as pupils or who may wish to consult him on the subject of their studies.

The Middlesex Hospital.

Consulting Dental Surgeon—J. Tomes, Esq., F.R.S., M.R.C.S., L.D.S., Consulting Dental Surgeon to the Dental Hospital of London.

Dental Surgeon—J. Turner, Esq., M.R.C.S., L.D.S., Lecturer on Mechanical Dentistry at the Dental Hospital of London.

Students who intend to become Licentiates in Dental Surgery of the Royal College of Surgeons are admitted to attend the requisite courses of lectures and hospital practice on payment of a fee of forty guineas, either in one payment or by instalments of twenty-five guineas on entrance, and fifteen guineas at the beginning of the second winter session.

Pupils also receive instructions on Diseases of the Teeth and the Operations connected with them daily at 9 a.m. Fee £5 5s.

Further information may be obtained from Andrew Clark, Esq., the Dean, or from the Resident Medical Officer at the Hospital.

This Hospital has the additional advantage of being in close proximity to the Dental Hospital of London. (See Advertisement.)

University College Hospital.

The Dental Surgeon is G. A. Ibbetson, Esq., F.R.C.S., L.D.S., late Lecturer on Dental Anatomy and Physiology, Human and Comparative, at the London School of Dental Surgery, and late Dental Surgeon to the Dental Hospital of London. He gives a course of twelve lectures at University College on Mondays and Thursdays, at 4 p.m., beginning in January. Fee £2 2s. These lectures on Dental Surgery are recognised by the Royal College of Surgeons as qualifying for the Diploma in Dental Surgery. A silver medal in this class is awarded to the most proficient student.

Lectures on Clinical Surgery, once a fortnight or oftener, by Professor Marshall, Professor Hill, and occasionally by Professor Erichsen.

Sir Henry Thompson, Emeritus Professor of Clinical Surgery, will deliver a short Course during the Session.

Mr. Christopher Heath, the Holme Professor of Clinical Surgery, will give a Clinical Lecture, and also hold a clinical examination on surgical cases once a week.

Mr. Marcus Beck, M.S., M.B., and Mr. Arthur E. Barker, the assistant teachers of Clinical Surgery, will also hold written and *vivâ voce* examinations of the students throughout the year, and during May, June, and July, will instruct the second year's Students in the observation and examination of patients twice a week as required by the Royal College of Surgeons.

Scholarships, Exhibitions, and Prizes.

Three Entrance Exhibitions, of the respective values of £30, £20, and £10 per annum, tenable for two years.

An Atkinson Morley Scholarship for the promotion of the study of Surgery, £45 a year, tenable for three years.

Sharpey Physiological Scholarship, about £70 a year, tenable for three years.

Filiter Exhibition for Proficiency in Pathological Anatomy, £30.

Liston Gold Medal for Clinical Surgery.

Dr. Fellowes's Medals for Clinical Medicine, two Gold and two Silver.

Alexander Bruce Gold Medal for Pathology and Surgery.

Cluff Memorial Prize, awarded every other year for proficiency in Anatomy, Physiology, and Chemistry.

The next Examination for the Entrance Exhibitions will be held on September 28th and following days.

Students are recommended to apply to the Dean, Prof. Graily Hewitt, M.D., or to the Vice-Dean, Prof. Christopher Heath, for any information or advice that they may require regarding their studies.

King's College, London.

Dental Surgeon, Professor S. Hamilton Cartwright, M.R.C.S.

The Winter Session opens on Friday, 1st October, with an Introductory Address by Professor Curnow, M.D.

The fee at this College for taking the L.D.S. is £95 1*s.* 6*d.* if paid in one sum on entrance, or £100 if paid by the following instalments, viz. £60 on entrance, and £40 at the beginning of the Second Winter Session; for those students qualifying themselves as medical practitioners, and afterwards taking up a special course of Dentistry, the fee is thirty guineas.

Further information may be obtained personally or by letter, marked outside "Prospectus," to J. W. Cunningham, Secretary. (See Advertisement.)

Charing Cross Hospital.

Dental Surgeon, J. Fairbank, Esq., M.R.C.S., who attends at the Hospital three days a week for Dental operations. A course of lectures on Dental Surgery is also given during the summer months.

The full amount of fees at this hospital for Dental Surgery is £49 7s., but the "composition" fee has been fixed at £42 2s., which includes the matriculation fee of £2 2s., and for which the Student enjoys all the privileges of a matriculation student, which are as follows:—

1st. They pay a proportionately lower amount of fees.

2nd. They alone are eligible for the following offices and appointments:—Resident medical officer, resident surgical officer, resident accoucheur, assistant demonstrator, pathological assistant, clinical clerks, dressers, Dentist's assistant.

3rd. They are admitted to the use of the library and reading rooms.

4th. They are admitted, without additional fee, to the special courses of practical instruction in clinical medicine, clinical surgery, and in bandaging, as well as to the clinical demonstrations and the pathological demonstrations.

5th. They are admitted, without additional fee, to the lectures on psychological medicine.

6th. They are specially instructed in the use of all the instruments of modern scientific research—the microscope, the ophthalmoscope, the laryngoscope, &c. They are themselves called upon to perform all the ordinary chemical tests and microscopical examinations requisite in medicine.

7th. They alone are entitled to compete for the scholarships.

For further information apply to Francis Hird, Esq., Dean. (See Advertisement.)

St. Bartholomew's Hospital and College.

Dental Surgeon and Lecturer, Alfred Coleman, Esq., L.R.C.P. Lond., F.R.C.S., L.D.S., Dental Surgeon to the Dental Hospital of London.

Lectures on Dental Surgery, Anatomy, Physiology, and Pathology, on Fridays, at 10.30 a.m., during the months of October, November, and December; the fee for one course is £2 2s., unlimited £3 3s. These Lectures are recognised by the Royal College of Surgeons as a course on Dental Surgery required for the Dental diploma.

The fee for general subjects for Dental students for the first winter is £26 5s., for the first summer £26 5s., or a single payment of £52 10s. The practice of the Dental department of this hospital is recognised by the Royal College of Surgeons.

This hospital is the oldest and one of the largest in London, and among many other advantages which it offers the student is that provision is made for their residence in the College, on the recommendation of a medical officer of the Hospital.

For the terms of board and residence and all other information regarding the College, application should be made, either personally or by letter, to the Warden of the College, Dr. Moore.

Westminster Hospital.

Dental Surgeon, J. Walker, Esq., M.D., M.R.C.S., L.D.S., who attends at 9 a.m. on Wednesdays and Saturdays for practical demonstration of diseases and operations on the teeth. A second Dental Surgeon will be appointed.

The fee for attendance on the Dental practice is £4 4s. for three months and £6 6s. for six months. The whole of the General lectures and surgical practice required for the Dental diploma of the College of Surgeons can be attended for £38, in one sum, on entrance, or for two sums of £26 10s. and £14 10s., payable at the beginning of each year.

Those who become General Dental Students, as above, will have the option of attending all the special classes required for the Dental diploma at Westminster, so as to avoid the waste of time which is incurred by constantly going to and fro between two hospitals.

The Lectures are as follows:

Dental Surgery and Pathology.—Mr. J. Walker on Wednesdays, in October, November, and December, at 9.30 a.m.

Metallurgy.—Dr. Duprè, F.R.S., on Tuesdays, in January, February, and March, at 4 p.m.

Dental Anatomy and Histology.—Dr. Allchin on Wednesdays, in May, June, and July, at 4 p.m.

Dental Mechanics.—(Vacant) in May, June, and July.

The Calendar will be forwarded on application to George Cowell, Esq., F.R.C.S., the Dean of the School, who will afford every information.

Guy's Hospital Medical and Surgical School.

Dental Surgeon, S. J. A. Salter, Esq., M.B., F.R.S., F.L.S., M.R.C.S., L.D.S. Assistant Dental Surgeon, H. Moon, Esq., M.R.C.S., L.D.S. Dressers are appointed to the Dental Surgeon, and hold office for two months, each receiving special certificates.

Practical instruction in Dental Surgery is given every Thursday at 12 o'clock. A certain number of cases of cleft palate, perforate palate, irregularities, lost portions of jaw, &c., are constantly under treatment for the instruction of students,—the necessary apparatus being supplied at the expense of the hospital.

A course of Lectures on Dental Surgery is delivered on Fridays at 12 o'clock during the Summer Session, and special instruction is given on this subject in the Surgery, by Mr. Moon, throughout the year.

Application respecting the School may be made to Mr. James Stocker, at the Medical Office, Guy's Hospital; or the Dean, Dr. F. Taylor. (See Advertisement.)

St. George's Hospital.

Dental Surgeon, Charles Vasey, Esq., L.F.P.S.G., L.D.S. Mr. Vasey attends at the Hospital on Tuesdays and Saturdays from 9 to 10, and on Thursdays at 1 o'clock.

A course of Lectures on Dental Surgery is given by Mr. Vasey in the summer session. Free to students of the hospital; to others the fee is £1 1s.

Gentlemen will be admitted to the lectures and hospital practice required for the diploma in Dental Surgery by one payment of £45. This sum does not include Practical Chemistry, which is £4 4s. extra.

Further information can be obtained by application to Dr. Barclay, Treasurer; or Dr. Wadham, Dean of the Medical School; and from the Resident Medical Officers at the Hospital. (See Advertisement.)

London Hospital Medical College.

Dental Surgeon, A. W. Barrett, Esq., M.B. Lond., M.R.C.S.

Mr. Barrett gives practical instructions on Tuesdays at 9 a.m.

The lectures are delivered by Mr. A. W. Barrett in March at 5 p.m.

Further information may be obtained on application addressed to Mr. James E. Adams, Treasurer, 10, Finsbury Circus, E.C.; the Vice-Dean, Waren Tay, Esq., F.R.C.S., at the Medical College, Turner Street, Mile End, London, E.; or A. W. Barrett, Esq., 42, Finsbury Square, E.C. (See Advertisement.)

Dental Department.

Mr. Barrett gives practical instruction on Tuesdays at 9 a.m., which is open to all Students of the School and Hospital, and can be attended by gentlemen who are not pupils. Mr. Barrett will be always glad to receive applications from those desirous of holding the office of Dental Assistant. A Dental

Assistant elected every 3 months from the Students. The attention of Dental Students is particularly directed to the fact that the Council of the College of Surgeons recognise the Dental Department of the London Hospital as a School at which may be obtained the Dental Practice necessary to qualify a Student for the Examination for the Dental Diploma. Dental Students may also obtain the General Medical Education and the Dental Practice, necessary for the Diploma, at the London Hospital School and College, on payment of a fee of 40 guineas.

For perpetual Dental Practice at the London Hospital a fee of 10 guineas.

St. Mary's Hospital Medical School.

Dental Surgeon, H. Howard Hayward, Esq., M.R.C.S., L.D.S.

Practical instruction in Dental operations is given on Wednesdays and Saturdays at 9.30 a.m. Dressers are appointed who hold office for 3 months. Also a special course of Lectures on Dental Surgery.

Fee for the course £2 2s.

Further information may be obtained by application to A. B. Shepherd, M.D., Dean of the School. (See Advertisement.)

St. Thomas's Hospital.

Dental Surgeon, John W. Elliott, Esq., M.R.C.S., L.D.S. Assistant Dental Surgeon, William Gill Ranger, M.R.C.S.

Gentlemen may receive instruction in diseases of the teeth, are appointed dressers, and can undertake operations subject to the supervision of the Dental Surgeons on Tuesdays and Fridays at 10 a.m.

Numerous cases of irregularity of the teeth, stoppings, and the application of artificial appliances are undertaken during each term. For further information apply to R. G. Whitfield, Esq., Medical Secretary. (See Advertisement.)

*Great Northern Hospital.**

Dental Surgeon, Charles James Fox, Esq., M.R.C.S., L.D.S.; Wednesdays at 2.

Practical instruction in Dental Surgery, by Mr. Fox. Fee £5 5s. for six months' practice.

National Dental Hospital, 149, *Great Portland Street.*

The practice of this Hospital is recognised by the Royal College of Surgeons of England for the Dental diploma.

The Hospital is open daily (Sundays excepted) for the reception of patients at 9 a.m.

Fee for two years' attendance on the practice of the Hospital, as required by the curriculum of the College of Surgeons, £12 12s.

Hospital Staff.

Consulting Physicians.—F. W. Pavy, M.D.; B. W. Richardson, F.R.S., M.D.
Consulting Surgeons.—Prof. Erichsen, F.R.C.S.; T. Spencer Wells, Esq., F.R.C.S.
Consulting Dental Surgeon.—J. Merryweather, Esq., F.R.C.S.

	Dental Surgeons.	*Assistant Dental Surgeons.*
Monday	Mr. A. Hockley, L.D.S.	Vacant.
Tuesday	Mr. Oakley Coles, L.D.S.	Mr. J. Stocken, L.D.S.
Wednesday	Mr. G. Williams, L.D.S.	Mr. C. E. White, L.D.S.
Thursday	Mr. A. F. Canton, L.D.S.	Vacant.
Friday	Mr. H. T. Kempton, L.D.S.	Mr. T. Yaddes, L.D.S.
Saturday	Mr. Harry Rose, L.D.S.	Vacant.

Administrator of Anæsthetics, Mr. C. Moss, M.R.C.S.

Hon. Sec., A. HOCKLEY.

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* This institution is not yet recognised by the Royal College of Surgeons, but affords an excellent field for practice to those who may desire it previous to entering the recognised schools.

Rules and Regulations to be observed by Students of the Hospital.

I.—Students admitted to the practice of this Hospital must enter for the period of two years, and with the understanding that it is their intention to obtain the Dental Diploma of the Royal College of Surgeons. Exceptions to this rule may, however, be made, under special or particular circumstances, with the consent of the Medical Committee.

II.—Students are required to attend the Hospital daily (except Sundays), at 9 a.m., and must sign their names and the time of their arrival in the Attendance Book. No Student shall be entitled to receive his Certificate of Attendance, unless he has attended more than two thirds of the time for which he had entered.

III.—No Student shall be allowed to undertake any operation during the first two months of his Hospital practice, except by special permission of the Dental Officer in attendance.

IV.—Students must provide the necessary instruments for stopping teeth; and all instruments and appliances the property of the Hospital shall, after being used by a Student, be returned by him, cleansed, to their proper places.

V.—No Student shall be allowed to receive fee or remuneration from any patient attending the Hospital; and no mechanical work in the form of artificial teeth shall be supplied to a patient by a Student of the Hospital.

VI.—The authority of the Medical Officers of the Hospital must be always respected by the Students; and in case of unseemly conduct, it will be the duty to report the same to the Committee, who shall have power to deal as they may think fit in such cases. (See Advertisement.)

Liverpool Dental Hospital, 29, *Russell Street.*

This Hospital is a School of Practical Dental Surgery duly recognised by the Royal College of Surgeons and open to all Students of Dentistry, under such regulations as shall be determined by the Committee of Management.

The Hospital is open daily for the admission of patients at 9 a.m.

Fees for Hospital practice £10 10s. per annum.

Further information may be obtained by applying to the Honorary Secretary, W. J. Newman, Esq., 75, Mount Pleasant.

Hospital Staff.

Consulting Physician.—John Macnaught, M.D., F.R.C.P., &c.

Consulting Surgeon.—Alfred Higginson, M.R.C.S., &c.

Consulting Dental Surgeons.

W. J. Newman, M.O.S.
R. E. Stewart, L.D.S.R.C.S.

Dental Surgeons.

James B. Lloyd.
William T. Bryan.
Tullius W. Fay, M.R.C.S.
E. J. M. Phillips, M.R.C.S., L.D.S.
Thomas F. Austin.
Evan A. Morgan, L.K.Q.C.P. Ireland, M.R.C.S., &c.

Assistant Dental Officer.—Charles T. Stewart.

(See Advertisement.)

Liverpool Royal Infirmary School of Medicine.

SUMMER SESSION.

Dental Surgery.—Joseph Snape, L.D.S.R.C.S.

Dental Mechanics.—Robert E. Stewart, L.D.S.R.C.S.

Dental Dispensary, Octagon, Plymouth.

Physician.—C. Albert Hingston, M.D. Lond.

Surgeons.

Christopher Bulteel, F.R.C.S., Surgeon to the Royal Albert Hosp., Devonport.
Connell Whipple, M.R.C.S., Surg. to the South Devon and East Cornwall Hosp.

Consulting Dentists.

Stratton J. Coles, M.O.S. | F. A. Jewers, M.O.S.

Dentists.

W. V. Moore, D.L.R.C.S. and M.O.S.
C. Spence Bate, F.R.S., D.L.R.C.S., late V.P.O.S., &c.
Francis H. Balkwill, D.L.R.C.S. and M.O.S.

Hon. Treasurer.—Alfred Payne Balkwill.

Hon. Sec.—E. G. Bennett.

The Dentists attend at 9 o'clock on Mondays, Wednesdays, Thursdays, and Saturdays, to stop, regulate, or extract teeth, or to adopt such a course as the necessity of the case may suggest.

A Course of Lectures will be delivered during the Year.

On "Dental Physiology," by C. Spence Bate, F.R.S., Dental Licentiate of the Royal College of Surgeons.
On "Dental Anatomy," by F. H. Balkwill, D.L.R.C.S.
On "Dental Mechanics," by W. V. Moore, D.L.R.C.S.
Fee to Lectures, one Course, £7 7s.
Fee to Lectures, double Course, £12 12s. (required for Diploma).
Fee to Dental Practice at Dispensary, £5 5s. per annum.
Fee to entire Dental Curriculum (required for Diploma), 22 Guineas.

E. G. Bennett, *Hon. Sec.*

Plymouth, 31st December, 1875.

Dental School.

Certificates of attendance on the practice of this Dental Dispensary are recognised by the College of Surgeons as qualifying for the Diploma in Dental Surgery.

The College will also recognise lectures delivered at the Dental Dispensary, Plymouth, when satisfied of their due delivery and efficiency.

Pupils of any of the Dental Surgeons of the Plymouth Dental Dispensary, or other Dentists holding a Diploma of the College of Surgeons, or Member of the Odontological Society, may attend the Dispensary on the day of such practitioner as may agree to accept such pupil or pupils, on the payment of £1 1s. per annum to the institution.

CALENDAR OF THE DENTAL HOSPITAL OF LONDON.

A very complete and comprehensive publication under this title has been published under the supervision of the late energetic Dean, Mr. Thomas Arnold Rogers. We have endeavoured in this and past years to supply the want of such a publication by our Students' Number; but an official paper such as we allude to cannot fail to be of great value. The late Dean, with his usual courtesy, favoured us with the following valuable hints to students and the subjoined tables, which cannot fail to be useful.

It will be seen that the requirements of paragraphs 3, 4, 5, 6, 7, 8, 10 (which include all attendances at the general and special hospitals and schools), can be fulfilled in two years, leaving 1 and 9 still to be met. The student can, if he please, arrange to spend his attendance on lectures and hospital practice over the four years mentioned in paragraph 2, including the three years' mechanical Dentistry (9) therein. But this is not always convenient, especially if his home is not in London. And an advantageous way of accomplishing all the objects of the Curriculum is by an apprenticeship (at as nearly 17 years of age as possible) to a competent Dental practitioner. The first two years may then be devoted to study,—including that of mechanical Dentistry,—during which the pupil should also go through a systematic course of reading suitable to the requirements of the Curriculum, and then he should commence his attendance at the hospitals and schools, fulfilling his third year of mechanical Dentistry in the intervals between the hospital winter and summer sessions. Even if at the outset he only intends to pass the Dental examination, he will do well to pass the preliminary in general knowledge first of all (though it is not compulsory in his case) in order that if he should afterwards wish to become a full Member or Fellow of the College of Surgeons, his attendances will be recognised, which will not be the case unless he has passed this preliminary examination. (Cal. Coll. Surg. Reg. Diploma of Member. Sec. II, par. 1.)

Subjoined are sketches of the way in which the Dental Curriculum may be fulfilled in two years. It is drawn up to suit the Dental and Middlesex Hospitals, which latter has hitherto been the most convenient for Dental students, and which has lately made very great alterations in its lecture hours in order still further to meet their requirements.

Dental Diploma only. Dental and Middlesex Hospitals.

First Winter Session.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9	...	Physiology.	...	Physiology.	...	Physiology.
9—12	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.
1—3	Dissections or Wards.	Dissections or Wards.	Dissections or Wards.	Dissections or Wards.	Dissections or Wards.	Dissections or Wards.
3	Chemistry.	Sur. clinique.	Chemistry.	Chemistry.	Chemistry.	
4	Anatomy.	Anatomy.	...	Anatomy.	Anatomy.	
6.30	...	Metallurgy.	...	...	Metallurgy.	
7	...	...	Dental Mechanics.			

First Summer Session.

8	...	Den. Surgery.	Den. Anat.	Den. Surgery.	...	Den. Anat.
9—12	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.	Dental Hospital prac.
3	Prac. Chem.	...	Prac. Chem.	...	Prac. Chem.	
4	Materia Med.	...	Mat. Med.	...	Materia Med.	

Second Winter Session.

9	Medicine.	Den. practice.	Medicine.	Den. practice.	Medicine.	Den. practice.
10—3	Den. practice. Dissections or Wards.	... Dissections or Wards.	10. Den. prac. Dissections or Wards.	... Dissections or Wards.	10. Den. prac. Dissections or Wards.	Dissections or Wards.
3	Surgery.	Sur. clinique.	Surgery.	Surgery.		
4	Anatomy.	Anatomy.	...	Anatomy.	Anatomy.	
7	...	...	Dental Mechanics.			

Second Summer Session.

8	...	Den. Surgery.	Den. Anat.	Den. Surgery.	...	Den. Anat.
9	Den. practice.	Den. practice.	Den. practice.	Den. practice.	Den. practice.	Den. practice.

Charing Cross and King's College Hospitals are also conveniently near the Dental Hospital; and the student wishing to enter at either of them, or at any other general hospital for general subjects, can procure a calendar, and construct for himself a similar diary to the above.

He is also permitted to use the library of the Odontological Society for works of occasional reference, under certain regulations, at which he will receive notice on entering at the Dental Hospital.

The student of Dental Surgery is strongly recommended to take the diploma of a full Member of the College of Surgeons; if possible, that of Fellow; but at all events, of Member, as well as the Dental Diploma. The extended course of study ensures, *cæteris paribus*, a deeper acquaintance with the principles of medicine; and the possessor of the full diploma also necessarily takes a higher position in professional estimation than the holder of the special diploma only. This, however, involves a larger expenditure of time and money; and four years' attendance on lectures and hospital practice will hardly be too much for the attainment of the Dental Diploma and that of membership of the College of Surgeons.

From the following it will be seen that the lectures on anatomy, physiology, surgery, medicine, materia medica, chemistry, and practical chemistry, attended by the Dental student, suffice also for the surgical diploma. The additional lectures are—

One course of thirty lectures on practical anatomy and physiology.
Three months' course of pathological anatomy.
One course of forensic medicine.
One course of midwifery with practical instruction.
Six months' practical surgery.
Three months' practical pharmacy.

Instead of two winter sessions of surgical practice, three winter and two summer sessions are required; and also one winter and one summer session of medical practice. Instead of nine months' dissections, two winter sessions are necessary; and a six months' dressership is also required, with one or two minor matters easily accomplished.

Subjoined is a sketch of the way in which the two curricula can be fulfilled. The Middlesex Hospital being here also chosen for the same reason as in the previous section.

Dental Diploma and Membership of College of Surgeons. Dental and Middlesex Hospitals.

First Winter Session.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9	...	Physiology.	...	Physiology.	...	Physiology.
	Dissectns. or Surg.Wards.	Dissectns. or Surg.Wards.	Dissections or Surg.Wards. (Operations).	Dissections or Surg.Wards.	Dissections or Surg.Wards.	Dissections.
3	Chemistry.	...	Chemistry.	Chemistry.	Chemistry.	
4	Anatomy.	Anatomy.	...	Anatomy.	Anatomy.	

First Summer Session.

8	...	Den. Surgery.	Dental Anat.	Den. Surgery.	...	Dental Anat.
9	Practic. Physiology.	...	Practic. Physiology.	Practical Physiology.		
	Den. practice.	Den. practice.	Den. practice.	Den. practice.		Den. practice.
1	Surg. Wards.	Surg. Wards.	Operations.	Surg. Wards.	Surg. Wards.	Surg. Wards.
3	Prac. Chem.	...	Prac. Chem.		Prac. Chem	
4	Mat. Medica.	...	Mat. Medica.	...	Materia Med.	

Second Winter Session.

9	Medicine.	Den. practice or Dissectns.	Medicine.	Den. practice or Dissectns.	Medicine.	Den. practice or Dissectns.
	Den. practice or Dissectns.	...	Dent. practice or Dissectns.	...	Den. practice or Dissectns.	
1	Surg. Wards.	Surg. Wards.	Operations.	Surg. Wards.	Surg. Wards.	Surg. Wards.
3	Surgery.	...	Surgery.	Surgery.	Clin. Medical.	
4	Anatomy.	Anatomy.	...	Anatomy.	Anatomy.	

Primary examination in anatomy and physiology at College of Surgeons.

Second Summer Session.

8	...	Dental Surg.	Dental Anat.	Den. Surgery.	...	Dental Anat.
9	Den. prac.	Den. practice.	Den. practice.	Den. practice.	Den. practice.	Den. practice.
1	Surg. prac.	Surg. Wards.	Operations.	Surg. Wards.	Surg. Wards.	Surg. Wards.
3	...	Clinical Surg. Exams.	...	...	Clin. Medical.	

Details of Mechanical Dentistry.

Third Winter Session.

9	Den. practice.	Den. practice.	Den. practice.	Den. practice.	Den. practice.	Den. practice.
1	Med. or Surg. Wards.	Med. or Surg. Wards.	Operations.	Med. or Surg. Wards.	Med. or Surg. Wards.	Med. or Surg. Wards.
3	Prac. Surg.	Clinical Surg. Exams.	...	Prac. Surg.	Clin. Medical.	
4	Pathology (3 months).	...	...	Pathology.		
7	...	Metallurgy.	Dental Mechanics.	...	Metallurgy.	

Third Summer Session.

9	Forens. Med.	Midwifery.	Foren. Med.	Midwifery.	Forens. Med.	Midwifery.
1	Med. Wards.	Med. Wards.	Med. Wards.	Med. Wards.	Med. Wards.	Med. Wards.
3	...	Clinical Surg.				

Midwifery cases.

Practical pharmacy (three months).

Course of vaccination.

Details of Mechanical Dentistry.

Fourth Winter Session.

<table>
<tr><td>3</td><td>...</td><td></td><td>Clinical Surg.</td><td></td><td></td><td></td></tr>
<tr><td>7</td><td>...</td><td>...</td><td>Metallurgy.</td><td>Dental Mechanics.</td><td>Metallurgy.</td><td></td></tr>
<tr><td rowspan="2"></td><td rowspan="2">6 months' Dressership.
Details of Mechanical Dentistry.</td><td colspan="5">*Fourth Summer.*</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Pass examination in surgical anatomy and principles and practice of surgery and medicine.

Pass examination in Dental Surgery.

As the first or primary examination for the surgical diploma is held after the second winter session, it will be observed that comparatively little attention is directed to Dental subjects previous to this; in fact, the first winter is entirely devoted to general subjects. The first and second summer, and second and third winter sessions are principally devoted to Dental study, leaving the third and fourth summer and fourth winter again comparatively free for general subjects.

By passing the examination for the Membership first, the candidate for the Dental Diploma avoids examination by the surgical division of the examining board.

Dental Diploma only. Dental and Charing Cross Hospitals.

First Winter Session.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9	Anatomy.	...	Anatomy.	...	Anatomy.	
9—12	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.
11—12	Chemistry.	...	...	Chemistry.	Chemistry.	
12—4	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.
3—4	...	...	...	Anatomy.		
3.30—4.30	Physiology.	Physiology.	Physiology.	...	Physiology.	
6.30	...	Metallurgy.	...	...	Metallurgy.	
7	...	...	Dental Mechanics.			

First Summer Session.

8	...	Den. Surgery.	Den. Anat.	Den. Surgery.	...	Den. Anat.
9—12	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.	Dental Hospital Prac.
10—1	Prac. Chem.	...	...	...	Prac. Chem.	
9.45—10.45	...	Mat. Medica.	...	Mat. Medica.	...	Mat. Medica.
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.

Second Winter Session.

9	...	Surgery.	...	Surgery.	...	Surgery.
9—4	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.
10—3	Den. Practice.	...	Den. Practice.	...	Den. Practice.	
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.
4	Medicine.	...	Medicine.	...	Medicine.	
7	...	...	Dental Mechanics.			

Second Summer Session.

8	...	Den. Surgery.	Den. Anat.	Den. Surgery.	...	Den. Anat.
9	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.

The Charing Cross Hospital is situated within a few hundred yards of the Dental Hospital.

The Composition Fee for Dental Students is £42 2s.

Dental Diploma and Membership of Royal College of Surgeons. Dental and Charing Cross Hospitals.

First Winter Session.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Anatomy.	...	Anatomy.	...	Anatomy.	
9—4	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.
11—12	Chemistry.	...	...	Chemistry.	Chemistry.	
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.
3—4	Physiology.	Physiology.	Physiology.	...	Physiology.	

First Summer Session.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8	...	Den. Surgery.	Den. Anat.	Den. Surgery.	...	Den. Anat.
9	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.
9.45—10.45	...	Mat. Medica.	...	Mat. Medica.	...	Mat. Medica.
10—1	Prac. Chem.	...	...	...	Prac. Chem.	
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.

Second Winter Session.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Anatomy.	Surgery.	Anatomy.	Surgery.	Anatomy.	Surgery.
1—4	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.	Dissections.
	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.
3—4	...	...	...	Anatomy.		
3—4	Physiology.	Physiology.	Physiology.	...	Physiology.	
4	Medicine.	...	Medicine.	...	Medicine.	

Primary examination at College of Surgeons.

Second Summer Session.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8	...	Den. Surgery.	Den. Anat.	Den. Surgery.	...	Den. Anat.
9	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Practice.	Den. Prac.
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.

Third Winter Session.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Den. Practice.	Surgery.	Den. Practice.	Surgery.	Den. Practice.	Surgery.
1—3.30	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.
4	Medicine.	...	Medicine.	...	Medicine.	
7	...	Metallurgy.	Dental Mechanics.	...	Metallurgy.	

Third Summer Session.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Foren. Med.	...	Foren. Med.	...	Foren. Med.	
1—3	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.

Midwifery cases.
Practical pharmacy (three months).
Course of vaccination.
Details of Mechanical Dentistry.

Fourth Winter Session.

1—3	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.
7	...	Metallurgy.	Dental Mechanics.	...	Metallurgy.	

Fourth Summer Session.

1—3	Wards.	Wards.	Wards.	Wards.	Wards.	Wards.

In the above scheme the word "Wards" means surgical and medical practice in the hospital. Students are advised, in their first year, to attend more particularly to their anatomical, physiological, and scientific studies, rather than to clinical work.

It will be observed that in the above scheme the times of the classes at the two hospitals occasionally overlap. In such cases a student is expected to exercise discretion and suit his own convenience. The distance between the two hospitals is so trifling that, practically speaking, no time is lost in going from one to the other.

Dental Diploma only. Dental and St. Thomas's Hospitals.

First Winter Session.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9	Dental Hosp. Practice, Demonstrations and Dissections or Wards	Dental Hosp. Practice, Demonstrations and Dissections or Wards	Dental Hosp. Practice, Demonstrations and Dissections or Wards	Dental Hosp. Practice, Demonstrations and Dissections or Wards	Dental Hosp. Practice, Demonstrations and Dissections or Wards	Dental Hosp. Practice, Demonstrations and Dissections or Wards
9.30	...	...	...	...	...	Operations
12	...	Chemistry	...	Chemistry	Chemistry	
12.30	...	...	Anatomy			
1.30	...	...	Operations			
3	Anatomy	Anatomy	...	Anatomy	Anatomy	
4	Physiology	...	Physiology	...	Physiology	
6.30	...	Metallurgy	...	...	Metallurgy	
7	...	...	Den. Mechan.			

First Summer Session.

8	Mat. Med.	Dent. Surg.	Mat. Med., Dent. Anat.	Dent. Surg.	Mat. Med.	Dent. Anat.
9	Wards	Dental Hosp. Practice	Wards	Dental Hosp. Practice	Wards	
9.30	...	...	...	...	...	Operations
11—1	...	Prac. Chem.	...	Prac. Chem.	..	Prac. Chem.
1.30	...	...	Operations			

Second Winter Session.

9	Dental Hosp. Practice, Demonstrations, Dissections, or Wards	Dental Hosp. Practice, Demonstrations, Dissections, or Wards	Dental Hosp. Practice, Demonstrations, Dissections, or Wards	Dental Hosp. Practice, Demonstrations, Dissections, or Wards	Dental Hosp. Practice, Demonstrations, Dissections, or Wards	Dental Hosp. Practice, Demonstrations, Dissections, or Wards
9.30	...	...	...	...		Operations
12.30	...	...	Anatomy			
1.30	...	...	Operations			
2	Medicine	...	...	Medicine	Medicine	
5	Surgery	Surgery	Medicine	Surgery	Surgery	
7	...	...	Den. Mechan.			

Second Summer Session.

8	...	Dental Surg.	Dental Anat.	Dental Surg.	...	Dental Anat.
9	Dental Hosp. Practice	Dental Hosp. Practice	Dental Hosp. Practice	Dental Hosp. Practice	Dental Hosp. Practice	Dental Hosp. Practice

Dental Diploma and Membership of Royal College of Surgeons.

Dental and St. Thomas's Hospitals.

First Winter Session.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9—3	Wards, Dissections, &c.	Wards, Dissections, &c.	Wards, Dissections, &c.	Wards, Dissections, &c.	Wards, Dissections, &c.	Wards, Dissections, &c.
9.30	...	...	...	...	...	Operations
12	...	Chemistry	...	Chemistry	Chemistry	
12.30	...	...	Anatomy			
1.30	...	...	Operations			
3	Anatomy	Anatomy	...	Anatomy	Anatomy	
4	Physiology	...	Physiology	...	Physiology	

First Summer Session.

8	Mat. Medica	Den. Surg.	Mat. Medica or Den. Anat.	Den. Surg.	Mat. Medica	Den. Anat.
9	Wards, &c.	Den. H. Prac.	Wards, &c.	Den. H. Prac.	Wards, &c.	Den. H. Prac.
9.30	...	...	...	...	...	Operations
11—1	...	Prac. Chem.	...	Prac. Chem.	...	Prac. Chem.
1.30	...	...	Operations			
1.30—3	Prac. Physiol.	Prac. Physiol.	Prac. Physiol.	Prac. Physiol.	Prac. Physiol.	

Second Winter Session.

9	Den. H. Prac., Dissec., &c.	Den. H. Prac., Dissec., &c.	Den. H. Prac., Dissec., &c.	Den. H. Prac., Dissec., &c.	Den. H. Prac., Dissec., &c.	Den. H. Prac., Dissec., &c.
9.30	Wards	Wards	Wards	Wards	Wards	Operations
12.30	...	...	Anatomy			
1.30	...	...	Operations			
2	Medicine	...	...	Medicine	Medicine	
5	Surgery	Surgery	Medicine	Surgery	Surgery	

Second Summer Session.

8	...	Den. Surgery	Den. Anatomy	Den. Surgery	...	Den. Anat.
9	Den. Practice	Den. Practice	Den. Practice	Den. Practice	Den. Practice	Den. Practice
9·30	...	...	...	...	...	Operations
9—12	Wards	Wards	Wards	Wards	Wards	Wards
1·30	...	...	Operations			
3	Midwifery	Midwifery	...	Midwifery	Midwifery	
4	Oph. Surgery	P. & M. S.	...	...	P. & M. S.	

Third Winter Session.

9	Den. practice	Den. Practice	Den. Practice	Den. Practice	Den. Practice	Den. Practice
9·30	...	...	...	...	...	Operations
9—12	Wards, &c.	Wards	Wards	Wards	Wards	Wards
1·30	...	...	Operations			
2	Medicine	...	...	Medicine	Medicine	
3.5	Morbid Anat.					
4	...	...	...	Pathology		
5	Surgery	Surgery	Medicine	Surgery	Surgery	
5	P. & M. S.	P. M. S.				
7	...	...	Den. Mech.			

Third Summer Session.

9—12	Wards, &c.	Wards	Wards	Wards	Wards.	Wards
12	...	Foren. Med.	...	Foren. Med.	...	Foren. Med.
12	...	...	...	...	Mental D.	
4	Oph. Surg.					

Fourth Winter Session.

9—12	Wards, Clin. Surg., &c.	Wards, Clin. Surg., &c.	Wards, Clin. Surg., &c.	Wards, Clin. Surg., &c.	Wards, Clin. Surg., &c.	Wards, Clin. Surg., &c.
6·30	Metallurgy	...	...	Metallurgy		
7	...	Den. Mech.				

Fourth Summer Session.

DETAILS OF MECHANICAL DENTISTRY.

	Wards, &c.	Wards	Wards	Wards	Wards	Wards

As the first or primary examination for the surgical diploma is held after the second winter session, it will be observed that comparatively little attention is directed to Dental subjects previously to this; in fact, the first winter is entirely devoted to general subjects. The first and second summer, and second and third winter sessions are principally devoted to Dental study, leaving the third and fourth summer and fourth winter again comparatively free for general subjects.

By passing the examination for the Membership first, the candidate for the Dental diploma is exempt from examination by the surgical division of the examining board.

For the Fellowship the preliminary examination is slightly higher. The candidate for the diploma must also be 25 years of age, and have been engaged six years in the acquirement of professional knowledge at recognised hospitals or schools.

LAWS OF THE STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE.

Constitutional.

1. That the Society be called the "Students' Society of the Dental Hospital of London."

2. That the object of the Society be the consideration of matters generally and specially appertaining to Dentistry.

Management.

3. That the affairs of the Society be managed by a Council consisting of a President, Vice-President, Treasurer, two Secretaries, and six other members.

4. That the President be chosen from the past students who have obtained their degree of L.D.S.

5. That the Vice-President be chosen from the past students, with or without qualification.

6. That the Council consist of five second and four first year's students, the former to retire annually, their places being filled by the latter, the number being completed by the election of one other second and four first year's students.

7. That in the absence of the President or Vice-President the Treasurer take the chair.

8. That the Treasurer shall hold money accruing from the subscriptions of

the members, or other sources; and shall pay therefrom all outstanding debts of the Society (after they have been submitted to the Council), and shall keep a correct account of all payments and receipts.

9. That the Secretaries shall attend all the meetings, and take minutes of all the proceedings, which minutes may be inspected by any member on application to the Secretaries, at 40, Leicester Square.

10. That if the author desire it, one of the Secretaries shall read his paper at the ordinary meeting of the Society.

11. That the Council shall prepare a report of the general and financial state of the Society, and lay it before the members at the annual general meeting.

12. That two members from the body of the Society shall be appointed as Auditors, to examine and approve its accounts for the annual report in January.

13. That a Council meeting shall be held for one hour before the ordinary monthly meeting of the Society.

14. That the Council shall have the power to fill such vacancies in the various offices as may from time to time occur, subject to the approval of the next general meeting.

15. That the Council shall have power to make such new bye-laws as may from time to time become necessary, subject, however, to the approval of the Society, at the next annual general meeting.

16. That no resolution concerning the affairs of the Society, or involving alteration of the Laws, can be proposed at a general meeting, unless at least seven days' notice has been given, and the resolution read at the previous ordinary meeting.

Members.

17. That any gentleman wishing to become a member must be proposed and seconded at one meeting, and be balloted for at the next; one black ball in four to exclude.

18. That a copy of the rules be presented to every member on his election.

19. That the staff of the Hospital and lecturers of the School be *ex officio* Honorary members.

20. That the entrance-fee for Ordinary members be half-a-crown, and half-a-crown be the annual subscription.

21. That old qualified students be invited by the Council to become Honorary members, and that members on gaining the diploma of Licentiate in Dental Surgery become thenceforth Honorary members.

22. That should the necessity arise for the expulsion of any members, a special general meeting shall be called by the Council, at the request of not fewer than three members, at which not less than two thirds of the ordinary members shall be present, and two thirds of such meeting shall vote; one black ball in four to evict.

Meetings.

23. That an ordinary meeting be held on the second Monday in every month, from October to March inclusive; the chair to be taken at 8 o'clock p.m., and the meeting to be adjourned at 9.30; but by the consent of the majority it may be prolonged half-an-hour. And that the annual meeting for the election of officers, and other business, be held in January of each year.

24. That the following shall be the order of business at the ordinary meetings:

1. The chair to be taken.
2. The minutes of the previous meeting to be read and confirmed.
3. Members proposed at the previous meeting to be balloted for.
4. New members proposed.
5. Visitors announced.
6. Miscellaneous business transacted.
7. Paper of the evening read.
8. Paper of the evening discussed.
9. Business of the next meeting announced.
10. Meeting adjourned.

Visitors.

25. That every member shall have the power of introducing one visitor, not being a student of the Hospital or School, to the evening meetings, with the consent of the President.

26. That visitors shall be allowed to take part in the discussion of the papers and clinical cases, but shall have no voice in the business of the Society.

Papers.

27. That no paper shall be read before the Society until it has received the sanction of the Council, and papers must be submitted to the Council at least seven days previous to the meeting.

28. That all papers read at the meetings become the property of the Society.

29. That any member of the Society having given notice of his intention to read a paper, and failing on the appointed day to produce such paper, shall be subject to a fine of 5s., unless illness or some other satisfactory cause be named in writing to one of the Secretaries for the information of the Council on the day preceding the meeting.

Library.

30. That the Secretaries discharge the duties of Librarians.

31. That the journals and books received by the Society shall be kept at the Dental Hospital for a fortnight, and then shall be lent to members for one night on personal application to the Secretaries.

32. That members take precedence according to their entrance at the Hospital, present students having preference to past ones.

33. That should any member injure, or remove before or retain after the appointed time, any periodical or book belonging to the Society, he shall be liable to the fine of sixpence.

Prize.

The Council purpose offering a prize, value £3 3s., at the end of the Winter Session, for the best paper read before the Society in the forthcoming session under the following conditions:

1st. That no member possessing a medical or surgical degree or diploma shall be allowed to compete.

2nd. That in the event of there being more than six papers the Council shall have power to appoint extra meetings or otherwise arrange as it may think fit.

3rd. That two members of the hospital staff be selected at the Annual General Meeting and be requested by the members to test the merits of the several papers read and award the prize.

The following are the officers for 1876-77:

President.—David Hepburn, L.D.S.

Vice-President.—F. J. Bennett.

Treasurer.—T. A. Roberts.

Secretaries.

M. L. Bell.	A. Underwood.

Council.

H. A. Bevers.	J. Ackery.
S. Birt.	L. Reid.
H. B. Mason.	W. H. Sercombe.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

REGULATIONS RESPECTING THE EDUCATION AND EXAMINATION OF CANDIDATES FOR THE DIPLOMA OF MEMBER OF THIS COLLEGE.

SECTION I.

Preliminary General Education and Examination.

I. Candidates who commenced their Professional Education on or after the 1st of January, 1861, will be required to produce one or other of the following Certificates:

1. Of Graduation in Arts at a University recognised for this purpose.

The following are the Universities at present recognised, viz.:

Oxford; Cambridge; Dublin; London; Durham; Queen's University in Ireland; Edinburgh; Glasgow; Aberdeen; and St. Andrew's.

Calcutta; Madras; and Bombay.

Canada.—McGill College, Montreal; and Queen's College, Kingston.

2. Of having passed an Examination for Matriculation, or such other Examination as shall, in either case, from time to time be sanctioned by the Council of this College, at a University in the United Kingdom, or at a Colonial or Foreign University recognised by the Council of this College.

The following are the Examinations at present recognised under this Clause (No. 2), viz.:

Oxford.—Responsions or Moderations.
  Local Examinations, Senior and Junior. The Certificates to include Latin and Mathematics.
Cambridge.—Previous Examination.
  Local Examinations, Senior and Junior. The Certificates to include Latin and Mathematics.
Oxford and Cambridge.—"Schools' Examination Board." The Certificates to include the several subjects required in the Preliminary Examination of the College.
Dublin.—Entrance Examination.
London.—Matriculation Examination.
Durham.—Examination of Students in Arts in their second and first years.
  Local Examinations, Senior and Junior. The Certificates to include Latin and Mathematics.
  Registration Examination for Medical Students.
Queen's University in Ireland.—Two years' Arts Course for Diploma of Licentiate in Arts.
  Preliminary Examinations at end of B.A. Course.
  Local Examinations. The Certificates to include Latin and Mathematics.
  Matriculation Examinations.
Edinburgh; Aberdeen; Glasgow; and St. Andrew's.—Preliminary or Extra Professional Examinations for Graduation in Medicine.
Calcutta; Madras; and Bombay.—Matriculation Examinations.
Canada; Queen's College, Kingston.—Matriculation Examination, Preliminary Examination of Students in Medicine. McGill College, Montreal; Bishop's College, Montreal; University College, Toronto; University of Trinity College, Toronto; Victoria College, Toronto; University of Laval, Quebec.—Matriculation Examinations.
Nova Scotia; King's College, Windsor.—Matriculation Examination.— Responsions. New Brunswick; Fredericton.—Matriculation Examination. Dalhousie College and University, Halifax.—Matriculation Examination.
Australia; Melbourne.—Matriculation Examination, with a Certificate that the Student has passed an Examination in Latin. Sydney.—Matriculation Examination. Adelaide; South Australian Institute.
University of the Cape of Good Hope.—Matriculation Examination.
New York; Bellevue Hospital Medical College.—Matriculation Examination

3. Of having passed the Preliminary Examination for the Fellowship of this College.

4. Of having passed the Preliminary Examinations of the Royal College of Surgeons in Ireland and of Edinburgh, or of the Faculty of Physicians and Surgeons of Glasgow.

5. Of having passed the Examinations in Arts of the Society of Apothecaries of London, or of the Apothecaries' Hall of Ireland.

6. Of having passed the First-Class Examination of the College of Preceptors.

7. Of having obtained the Testamur of the Codrington College, Barbadoes.

8. Of having obtained the Degree of Associate of Arts granted by the Tasmanian Council of Education, with a Certificate that the Student has been examined in Latin and Mathematics.

9. Of having passed the Voluntary Examinations of Christ's College, Canterbury, New Zealand, the Certificate to include all the subjects required from time to time in the Preliminary Examination of the College.

II. Candidates who shall not be able to produce one or other of the foregoing Certificates will be required to pass an Examination in English, Classics, and Mathematics, conducted by the Board of Examiners of the College of Preceptors, under the direction and supervision of the College.

This Examination is at present compulsory only on Candidates for the Membership or Fellowship of the Royal College of Surgeons, but all Candidates for the Dental Diploma are earnestly advised to pass it, as,

On and after the 1st of October, 1877, this Preliminary Examination will be compulsory on all Candidates for the Dental Diploma.

The following are the subjects of the Examination referred to in the foregoing paragraph for the year 1876, and until further notice, viz.:

PART I.—Compulsory Subjects.

1. Writing from dictation.
2. English Grammar.
3. Writing a short English composition; such as a description of a place, an account of some useful or natural product, or the like.
4. Arithmetic. No Candidate will be passed who does not show a competent knowledge of the first four rules, simple and compound, of Vulgar Fractions, and of Decimals.
5. Questions on the Geography of Europe, and particularly of the British Isles.
6. Questions on the outlines of English History, that is the succession of the Sovereigns and the leading events of each reign.
7. Mathematics. Euclid, Books I and II, or the subjects thereof; Algebra, to Simple Equations inclusive.
8. Translation of a passage from the second book of Cæsar's Commentaries "De Bello Gallico."

PART II.—Optional Subjects.

Papers will also be set on the following six subjects, and each Candidate will be required to offer himself for examination on one subject at least, at his option; but no Candidate will be allowed to offer himself for examination on more than four subjects:

1. Translation of a passage from the first book of the Anabasis of Xenophon.
2. Translation of a passage from X. B. Saintine's 'Picciola.'
3. Translation of a passage from Schiller's 'Wilhelm Tell.'

Besides these Translations into English, the Candidate will be required to answer questions on the Grammar of each subject, whether compulsory or optional.

4. Mechanics. The questions will be chiefly of an elementary character.
5. Chemistry. The questions will be on the elementary facts of Chemistry.
6. Botany and Zoology. The questions will be on the classification of Plants and Animals.

The quality of the handwriting and the spelling will be taken into account.

N.B. Each Candidate (who has not at a previous Examination paid the amount) is required to pay a Fee of £2 on the morning of the first day of the Examination prior to his admission thereto. Particulars respecting the date of the Examination will be duly advertised in the journals. Candidates are required to send in the prescribed form of application not less than three weeks before the commencement of the Examination.

NOTE.—A Candidate, in order to qualify for the Fellowship, is required, in addition to the subjects included in Part I, to pass in Greek, and in French or German, and in one, at his option, of the remaining subjects in Part II.

We subjoin, with permission, examples of some of the questions on each subject, as they were given at the last examination, but copies of the complete examination papers may be had of C. F. HODGSON & SONS, 1, Gough Square, Fleet Street, E.C., price 6d. the set, or by return of post on enclosure of seven postage stamps.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

PRELIMINARY GENERAL EXAMINATION.—MARCH, 1876.

English Grammar and Composition.

It is said that, while the English alphabet has not enough symbols, it has also some useless ones. Explain and illustrate this statement.

Define an Adjective. Give instances of different kinds of adjectives, and show how adjectives may be formed from nouns. Write down the positive of *last, best, first, furthest, least, utmost, worst.*

Show that words ending in *-ing* may be either *participles* or *nouns.*

How are Adverbs classified? Form adverbs from the following words:—*who, the, head, good, first, back, piece.*

Analyse the following passage, and parse fully the words in italics:—

At last, when care *had banished* sleep,
He saw *one morning*—dreaming—doting,
An empty hogshead from the deep
Come shoreward floating.

Geography.

[N.B.—Not more than *eight* questions need be answered.]

Mention the chief mountain and hill ranges in Scotland, and state in what direction they run. Name the highest summit in the British Islands.

Mention six inland watering-places in England, and state the counties in which they are situated.

What English counties lie south of the Thames? Give the county town in each case.

What and where are the following places:—Bosphorus, Cattegat, Dardanelles, the Hague, Nordkyn, the Skaw, the Sound, Zuyder Zee?

How is Switzerland separated from Italy, France, Germany, and Austria respectively? What is the form of government in Switzerland?

Arithmetic.

Multiply 5 oz. 7 drs. 2 scr. 15 grs. by 35; and divide £29 11*s.* 4½*d.* by 83.

Find the difference between the average length of a month in the first and second halves of the year 1876.

Express $\frac{13}{1000}$, $\frac{3}{8}$, $\frac{41}{110}$ as decimals; and ·07625 as a fraction in its lowest terms.

What part of £6 1*s.* 1¾*d.* is $\frac{5}{6}$ of £3 12*s.* 8¼*d.*?

Express 758 millimetres in inches.

English History.

What traces still exist of the occupation of England by the Romans and Saxons?

Write an outline of the reign of John.

Assign dates to the accession of the following sovereigns:—Stephen, Edward III, Henry IV, James I, William and Mary, Victoria; and state, in each case, on what grounds the crown was claimed.

What were the chief incidents in the constitutional struggle between the Sovereign and the People under the Stuart Kings?

Latin.

I. TRANSLATE INTO ENGLISH—

Gallorum eadem atque Belgarum oppugnatio est haec. Ubi circumjecta multitudine hominum totis moenibus undique in murum lapides jaci coepti sunt, murusque defensoribus nudatus est, testudine facta, portas succedunt murumque subruunt. Quod tum facile fiebat. Nam quum tanta multitudo lapides ac tela conjicerent, in muro consistendi potestas erat nulli. Quum finem oppugnandi nox fecisset, Iccius Remus, summa nobilitate et gratia inter suos, qui tum oppido praefuerat, unus ex iis, qui legati de pace ad Caesarem venerant, nuntium ad eum mittit.

II. GRAMMATICAL QUESTIONS.

The case and construction of *multitudine, moenibus, defensoribus, portas, nulli, nobilitate, oppido, legati.*

The present, perfect, supine, and infinitive (active) of *jaci, succedunt, conjicerent, mittit;* also of *ago, jaceo, gero, emo.*

What was the *testudo* used in sieges, and why so called?

What are *deponent* and *neuter-passive* verbs? Give examples.

Euclid.—Books I & II.

Define the terms *plane surface, right angle, figure, acute-angled triangle, rectangle.*

To draw a straight line perpendicular to a given straight line of unlimited length, from a given point without it.

If a four-sided figure be a parallelogram, then the diameter bisects the four-sided figure, *that is,* divides it into two equal parts.

State the *converse* of this proposition. Is the converse generally true?

Prove that any line AD, drawn from the vertex A of the isosceles triangle ABC, and meeting the base BC in D, is less than a side AB.

To describe a square that shall be equal to a given rectilineal figure.

French.

I. TRANSLATE INTO ENGLISH—

"A boire!" dit le malade.

Au son de cette voix qu'il croyait ne devoir plus entendre, Ludovic ouvre de grands yeux et regarde avec stupéfaction Charney, dont la figure lui apparaît sous une nappe de sueur. Ses membres ruissellent, un nuage de vapeur sort de ses draps et de ses couvertures humides. Soit qu'une crise salutaire se fût déclarée tout à coup, et que, la nature aidant, le tempérament vigoureux du prisonnier triomphât du mal, soit que la double dose du liquide à lui administrée par Ludovic fût douée d'une grande puissance sudorifique, cette forte transpiration semble avoir à la fois rendu le malade à la vie et à la raison. Il ordonne lui-même ce qu'il lui paraît convenable de faire pour son soulagement. Puis, se tournant vers le prêtre, qui se tenait humble au chevet de son lit: "Je ne suis point mort encore, Monsieur," lui dit-il, "vous le voyez." . . . .—SAINTINE, "Picciola."

II. QUESTIONS ON GRAMMAR.

Write the first person singular of the *present indicative* and the *past indefinite* of the verbs *boire, croyait, devoir, entendre, sort, faire, se tenait, dit, voyez, paraît.*

How do you render *whose* interrogative, as in "*Whose voice did I hear?*

Whose house is this?" How else do you express *whose* when used as a conjunctive pronoun?

Translate into French:—He is tired. He is sleepy. He is asleep. His head aches. Open your eyes. Go to bed. This room is not yours, it is mine. Come this way. Which shall I give him, tea or brandy? Give him neither.

Algebra.

Find the value of $\frac{3x-a}{3x+a}+\frac{3x+a}{3x-a}-\frac{4}{35}$, when $x=4$, $a=2$.

Divide $x^4+x^3-4x^2+5x-3$ by x^2+2x-3.

Solve the equations—

$$(\alpha.)\ 4x+\frac{x+2}{3}=5x-2.$$

$$(\beta.)\ \frac{3}{x}+\frac{4}{x}=\frac{5}{x}-\frac{x-2}{\frac{1}{2}x}-2.$$

$$(\gamma.)\ \frac{x}{2}+\frac{x-4}{5}=\frac{x+8}{3}-2.$$

Find the Least Common Multiple of

$$x^2+10x+16 \text{ and } x^2-7x-18.$$

A. starts from York for London, a distance of 200 miles, at 15 miles an hour; four hours after, B. leaves London for York, travelling 16 miles an hour; where will they meet?

Greek.

I. TRANSLATE INTO ENGLISH—

Ταῦτα εἶπεν· οἱ δὲ στρατιῶται, οἵ τε αὐτοῦ ἐκείνου καὶ οἱ ἄλλοι, ταῦτα ἀκούσαντες, ὅτι οὐ φαίη παρὰ βασιλέα πορεύεσθαι, ἐπήνεσαν· παρὰ δὲ Ξενίον καὶ Πασίωνος πλείους ἢ δισχίλιοι λαβόντες τὰ ὅπλα καὶ τὰ σλευοφόρα ἐστρατοπεδεόσαντο παρὰ Κλεάρχῳ. Κῦρος δὲ τούτοις ἀπορῶν τε καὶ λυπύμενος μετεπέμπετο τὸν Κλέαρχον· ὁ δὲ ἰέναι μὲν οὐκ ἤθελε, λάθρᾳ δὲ τῶν στρατιωτῶν πέμπων αὐτῷ ἄγγελον ἔλεγε θαῤῥεῖν, ὡς καταστησομένων τούτων εἰς τὸ δέον· μεταπέμπεσθαι δ' ἐκέλευεν αὐτόν· αὐτὸς δ' οὐκ ἔφη ἰέναι. Μετὰ δὲ ταῦτα συναγαγῶν τοός θ' ἑαυτοῦ στρατιώτας καὶ τοῦς προσελθόντας αὐτῷ καὶ τῶν ἄλλων τὸν βουλόμενον ἔλεξε τοιάδε.

II. GRAMMATICAL QUESTIONS.

Decline throughout the singular *στρατιῶται, λαβόντες, αὐτῷ*; and throughout the the plural *βασιλέα, πλείους, συναγαγών.*

The future, perfect, and aorist of *ἀκούσαντες, ἐπήνεσαν, ἔλεγε, ἐκέλευεν, προσελθόντας.*

Parse *ἀπορῶν, λάθρᾳ, καταστησομένων.*

Chemistry.

How can it be proved that water consists of oxygen and hydrogen, and of nothing else; and how are the proportions, by weight and by volume, ascertained?

Describe, without using formulæ, the processes of preparing phosphorus; and mention its properties and allotropic modifications.

Write down what you know of the chemistry of bromine and its compounds.

After the corresponding number in each case, write down the chemical name of the substance of which each of the following materials essentially consists:—

1. Saltpetre.
2. Vitriol.
3. Alum.
4. Vermilion.
5. Prussian blue.
6. Bleaching powder.
7. Black-lead.
8. White-lead.
9. Sand.
10. Glass.
11. Epsom salts.
12. Vinegar.
13. Clay.
14. Calomel.
15. Chalk.

German.

I. TRANSLATE INTO ENGLISH.

GEZLER.

Deffnet die Gasse—Frisch, was zauderst du?
Dein Leben ist verwirkt, ich kann dich tödten;
Und sieh, ich lege gnädig dein Geschick
In deine eigne kunstgeübte Hand.
Der kann nicht klagen über harten Spruch,
Den man zum Meister seines Schickfals Macht.
Du rühmst dich deines sichern Blicks. Wohlan!
Hier gilt es, Schütze, deine Kunst zu zeigen;
Das Schwarze treffen iu der Scheibe, das
Kann auch ein Andrer; der ist mir der Meister,
Der seiner Kunst gewisz ist überall,
Dem 's Herz nicht in die Hand tritt, noch in's Auge.

WALTER FÜRST (WIRST SICH VOR IHM NIEDER).

Herr Landvogt, wir erkennen eure Hobeit;
Doch lasset Gnad' für Recht ergeben, nehmt
Die Hälfte meiner Habe, nehmt sie ganz!
Nur dieses Gräszliche erlasset einem Bater!
(*Schiller.*—"WILLIAM TELL.")

II. GRAMMATICAL QUESTIONS.

Indicate the gender and the nominative plural of Gasse, Geschick, Hand, Spruch, Meister, Schicksal, Schutze, Kunst, Herz, and Auge.

Does der Hase follow the weak or the strong declension; and masculines of what description are declined like Hase?

Give the present indicative of treten, and the second person singular of the imperative of the same verb.

Mechanics.

[N.B.—No credit will be given for answers which merely give numerical results without indicating the reasoning employed to arrive at them.]

A weight of 30 pounds is supported by two strings which are at right angles to each other, and one of them makes one-third of a right angle with the vertical; find the tension in each string, (i) by drawing a figure,* (ii) by calculation.

One end of a string is fastened to a fixed peg, and a weight, not much less than the greatest that the string can bear, is hung to the other end. Explain how it is that (although the string could support the weight, if hanging at rest, for any length of time) it can be broken by raising the weight, so that the string becomes slack, and then letting the weight drop, so as to stretch the string suddenly. Also show what would be the effect (if any) of fastening the upper end of the string to a spring, instead of to a fixed peg.

A stone is dropped from the edge of a cliff 400 feet high: with what velocity will it strike the ground at the bottom? At what height above the ground will it have a velocity of 112 feet per second?

Natural History.

I. BOTANY.

Define the terms *nut*, *berry*, *capsule*, *strobilus*, and *siliqua*. Mention one or more examples of each.

Describe the structure of a *bean* and a grain of *wheat* respectively, and the changes which take during their germination.

Arrange in their natural orders, with Latin names if possible, the following plants:—*Adder's tongue, bamboo, loosestrife, poppy, bullrush, crowfoot, lily, water-lily, gentian, parsnip, furze, mustard.*

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* If you have not the means of drawing an accurate figure, draw the best you can, and explain how you would make use of a better figure so as to solve the problem proposed.

II. Zoology.

What are the great distinctive characters separating the *vertebrata* from the *invertebrata*, and the latter from *plants?*

What features and peculiarities of structure distinguish the *sharks* and *rays* from other fishes? In what group or division are they classified?

Group the following animals in their classes and orders, with their Latin names if possible:—*Alpaca, alligator, cobra, cockroach, dove, duckmole, earwig, falcon, heron, hydra, leech, pike, seal, sturgeon, shrew.*

ALPHABETICAL LIST OF LICENTIATES IN DENTAL SURGERY FOR 1876.

From the Calendar of the Royal College of Surgeons.

A.

1863 Aaronson, Andrew, Whitechapel-rd.
1876 Adams, Frank Haydon, Budleigh Salterton, South Devon.
1874 Alabone, A., Newport, I. of Wight.
1860 Allen, F. Charles, Maidstone.
1860 Allingham, J. Henry, Manchester.
1875 Allworth, A., Lyndhurst-rd., S.E.
1866 Apperly, Ebenezer, Stroud.
1860 Ash, George, Great Marlborough-st.
1863 Ash, G. Edward, Dover.
1863 Ash, William, Gt. Marlborough-st.
1863 Atkinson, J. Hastings, Leeds.
1875 Atkinson, J. O., Kendal.

B.

1860 Balkwill, F. Hancock, Plymouth.
1861 Barker, William, Fleet-street.
1863 Barkley, William, Worcester.
1873 Barrett, Ashley Wm., Finsbury-sq.
1860 Barrett, Henry John, Finsbury-sq.
1860 Bartlett, E. Barton, Connaught-sq.
1870 Bartlett, Edward, Connaught-sq.
1870 Bartlett, William, Connaught-sq.
1866 Bartlett, W. P., Hyde-park.
1860 Bate, Charles Spence, Plymouth.
1876 Bateman, G. W., Elgin-cres., W.
1869 Baylis, George Wm., Natal, Africa.
1875 Baylis, H. M., Tunbridge Wells.
1872 Baylis, Leighton, Natal, Africa.
1860 Bell, J., Grahamstown, Cape Colony.
1865 Bell, R. John, Canterbury.
Bell, Thomas, Selborne.
1874 Bellaby, G. L., Nottingham.
1875 Bennett, W. C. S., George-st.
1860 Bennett, Wm. George, George-st.
1873 Binns, Edmund, Middlesbro'.
1876 Birt, Stephen, Leamington.
1875 Bödecker, T. A., Holles-street, W.
1863 Bonnalie, George, Chester.
1863 Bradley, W. Tenney, Chichester.
1863 Bridgman, F. G., Queen Anne-st.
1861 Bridgman, W. Kencely, Norwich.
1863 Bright, C. Sibthorpe, Genoa, Italy.
1861 Bromley, C. Henry, Southampton.
1860 Brookhouse, Robert, Manchester.
1863 Brown, J. Henry, Brighton.
1876 Brown, Richard, Tavistock, Devon.
1873 Brownlie, James R., Glasgow.
1873 Bruce, P., Valparaiso, S. America.
1874 Bryant, Frank, Derby.
1863 Buckell, William, Salisbury.
1861 Budd, Henry, Ealing.
1861 Bullin, Frederick, Chester.
1876 Burrows, Walter Shoppee, New-road, E.

C.

1863 Cafferata, Phillip, Sunderland.
1863 Caldcleugh, John, Durham.
1861 Campbell, Walter, Dundee.
1860 Canton, A. G., Gt. Marlborough-st.
1875 Canton, F., Marlborough-street.
1874 Canton, F. A., Southampton-row.
1875 Carteighe, J., Stratford-place.
1876 Carter, Thomas Scales, Leeds.
1874 Cartwright, A., Old Burlington-st.
1860 Cartwright, S., Old Burlington-st.
1871 Cartwright, S. H. Old Burlington-st.
1860 Cattlin, William, Highbury-place.
1860 Cattlin, W. A. N., Brighton.
1860 Chisholm, John Knox, Edinburgh.
1869 Chisholm, William, Edinburgh.
1870 Clark, Charles Lane, Upper Berkeley-street, W.
1862 Clarke, James, Nottingham.
1864 Clarke, J. Clough, Nottingham.
1861 Clement, W. Salisbury, Bath.
1861 Cobb, J. S., Great Yarmouth.
1863 Cole, J. Fenn, Ipswich.
1860 Coleman, A., Savile-row, W.
1872 Coles, James Oakley, Upper Wimpole-street, W.
1875 Cook, Augustus, Upper Norwood.
1875 Corbett, J. J. F., Cork.
1863 Cormack, Alexander, Edinburgh.
1863 Cormack, David, Margaret-st., W.
1863 Cox, Edwin, Preston.
1861 Cunningham, J. T., Edinburgh.

D.

1863 Davies, E. L., Canonbury-road, N.
1862 Davis, Murray, Old Burlington-st.
1860 De Lessert, C. G., Wolverhampton.
1863 Dennant, John, Brighton.
1860 Devonshire, J. K., Great Coram-st.
1862 Dickenson, M. de C., St. Leonards-on-Sea.
1863 Didsbury, J. Montague, Paris.
1860 Doherty, William Izod, Dublin.
1863 Duff, A. M., Leicester.
1861 Dunn, C. William, Florence.
1863 Dykes, R. Colville, East Acton, W.

E.

1870 Ebbetts, Francis F., Margaret-st.
1860 Elliott, John Wilcox, Finsbury-sq.
1862 Elwin, John, Southampton.
1875 Eskell-Clifford, H. H., Dublin.
1860 Evans, John, Albany-street, N.W.

F.

1876 Farebrother, H. J. L., Stockwell.
1863 Finzi, S. Leon, Gower-street, W.C.
1860 Fitken, J. Spencer, Fleet-street.
1860 Fletcher, J. B., New Burlington-st.
1870 Forster, George Graham, Durham.
1860 Forsyth, W. F., George-street.
1861 Fort, William, Preston.
1863 Forward, Reginald, Southsea.
1875 Foss, A., Stockton-on-Tees.
1863 Fothergill, Alexander, Darlington.
1873 Fothergill, John A., Darlington.
1863 Fothergill, William, Darlington.
1863 Fowler, C. Jevons, Birmingham.
1860 Fox, C. J., Mortimer-street, W.
1863 Fox, G. Frederick, Gloucester.
1861 Fox, O. Annesley, Brighton.
1863 Fox, S. B., Exeter.
1875 Fox, Walter Henry, Gloucester.
1867 Freeman, B. W., Dublin.
1860 Freeman, St. George, Waterford.
1876 Furber, A. Wm., Kentish Town-rd.

G.

1875 Gaddes, T., Seymour-street, W.
1876 Gartley, J. Alexander, Sackville-st.
1874 Geldard, Richard H., St. Austell, Cornwall.
1873 Gibbings, Ashley, Stratford-pl., W.
1862 Gibbons, S. C., New Burlington-st.
1863 Gilbert, W. J., Old Quebec-street.
1875 Gill, H. B., Bow-road.
1863 Gill, Seth, Liverpool.
1871 Gingell, G. Moreton, Osborn-street.
1861 Goddard, H. H., Northampton.
1863 Goddard, William, Nottingham.
1863 Good, J. Saxty, Kensington.
1863 Grant, J. Sackville, Melbourne.
1863 Gregson, George, Harley-street.

H.

1876 Halliday, M. Wood, Nottingham.
1860 Hampson, J. D. C., Gloucester-place, N.W.
1863 Hankins, Thomas, Queen Anne-st.
1875 Harding, G. H., Acton, near Stafford.
1866 Harding, T. H. G., Park-sq., N.W.
1872 Harding, Wm. E., Shrewsbury.
1863 Hare, G. Frederick, Limerick.
1860 Harrington, G. Fellows, Ryde.
1863 Harrison, R., Camden-road, N.W.
1863 Harrison, R. Eunson, Hull.
1875 Hart, A. A., Newington-green.
1861 Hart, A. D., Dorchester-pl., N.W.
1863 Hatfield, J. H., Old Burlington-st.
1861 Hayward, H. Howard, Harley-st.
1864 Hele, Warwick, Carlisle.
1863 Helfrich, Rudolph, Bayswater.
1863 Henry, George, Hastings.
1875 Henry, W. F., Cornhill.
1860 Hepburn, David, Edinburgh.
1873 Hepburn, David, Portland-place.
1860 Hepburn, Duncan D., Nottingham.
1860 Hepburn, Robert, Portland-place.
1860 Hill, Alfred, Henrietta-street.
1863 Hockley, A., Gt. Marlborough-st.
1863 Holford, J. James, Orchard-st., W.
1863 Holford, W. T., Half Moon-street.
1863 Hoole, Stephen, Old Burlington-st.
1867 Hooper, H. John, Lee-green, S.E.
1861 Hunt, William, Yeovil.
1872 Hutchinson, S. John, Brook-street.

I.

1860 Ibbetson, G. A., 19A, Hanover-sq.

J.

1861 Jameson, W. E., Gloucester-pl., W.
1876 Jewers, Ernest Edwin, Plymouth.

K.

1863 Keeling, G. R., Epsom.
1875 Keeling, G. R., jun., Epsom.
1860 Keene, J. J., Boulogne-sur-Mer.
1863 Kempton, H. T. K., Cavendish-pl.
1860 Kernot, G. C., Chrisp-street, E.
1873 Khory, C., Framjee, Bombay.
1863 King, E. H. G., Stratford-pl., W.
1860 King, Joseph, York.
1871 King, Richard F. H., Newark.
1875 King, Thos. Edward, York.
1862 Kirby, H. Thomas, Leicester.
1863 Kirby, S. Amos, Bedford.
1873 Kissack, Edward T., Deansgate.
1860 Kyan, John Howard, Preston.

L.

1866 Lane, E. F., Keppel-street.
1863 Leatherby, W. L., Mornington-cres.

1860 Leigh, S. George, Leeds.
1860 Lindsay, John Burke, Dover.
1863 Lindup, George, Harley-street.
1860 Lintott, Wm. H., Wimpole-street.
1875 Lipscombe, J. M., Kilmarnock.
1863 Lloyd, Augustus, Boro' High-st.
1860 Longhurst, Henry B., Old Burlington-street.
1862 Longhurst, H. C. H., Leicester.
1860 Longhurst, S., Old Burlington-st.
1860 Lows, Andrew, Carlisle.
1861 Lyddon, George, Reading.
1870 Lyons, I. I., Finsbury-place, E.C.

M.

1866 M'Adam, G. Christopher, Hereford.
1860 Magor, Martin, Penzance.
1863 Manton, J. Nathaniel, Wakefield.
1863 Margetson, William, Dewsbury.
1871 Marsh, Henry, Manchester.
1863 Martin, E., Southsea.
1861 Martin, J. H. C. E., Portsmouth.
1876 Marriott, G. Herbert, Albion-st., W.
1876 Mason, Henry Biging, Exeter.
1862 Mason, J. T. Browne, Exeter.
1863 Matthews, A. M., Bradford, Yorks.
1860 Matthews, P., Welbeck-street.
1863 Medwin, A. G., Blackheath.
1873 Merson, J., Southmolton, Devon.
1873 Merson, W., Brighton.
1861 Mitchell, F. W., Clapham-road.
1867 Moon, Henry, Finsbury-square.
1863 Moore, Leopold, Grosvenor-street.
1863 Moore, W. V., Plymouth.
1862 Morgan, W. Thomas, Burwood-pl.
1863 Morley, Henry, Derby.
1875 Morris, Wm. Graves, Winchester-street, S.W.
1863 Moseley, Gillam, Sheffield.
1862 Moseley, A., Newcastle-on-Tyne.
1873 Mummery, J. H., Cavendish-place.
1860 Mummery, J. R., Cavendish-place.
1863 Murphy, A. Hallam, Derby.
1863 Murphy, J. E., Moseley, Derby.
1863 Myers, L. James, St. Albans.

N.

1862 Nichol, W. Henderson, Leeds.
1863 Nightingale, C. Gibbs, Shrewsbury.
1863 Nolan, W. H., Berners-street.
1860 Normansell, F., Gloucester-street.

O.

1866 Oliver, J. Cardell, Cardiff.
1863 Ollive, Henry J., Chelsea.
1860 Orrock, James, Leicester.
1860 Owen, George, Islington.

P.

1863 Palmer, T. W. G., Cheltenham.
1861 Parker, S. Adams, Birmingham.
1860 Parkinson, E. P., Brighton.
1860 Parkinson, George Thomas, Bath.
1860 Parkinson, James, Sackville-street.
1863 Parks, W. John, Newington-cres.
1860 Parsons, Robert, York-place.
1868 Payne, G. William, Ebury-st., S.W.
1873 Payne, Henry Peter, Southampton.
1875 Pearman, G. B., Chelsea.
1860 Penny, Geo. Stothert, Cheltenham.
1860 Perkins, Henry John, City-road.
1863 Perkins, William, Baker-street.
1863 Petty, Frank, Reading.
1873 Phillips, Arthur R., Cavendish-sq.
1875 Phillips, E. J. M., Liverpool.
1863 Pillin, L. Burgoyne, Conduit-st., W.
1860 Pilling, Rt. Campbell, Blackburn.
1872 Poundall, William Lloyd, Brighton.

R.

1860 Randell, Edward, Torrington-sq.
1860 Ransom, R., Hanover-street.
1866 Read, Thomas, Holles-street, W.
1864 Reboul, A. Percy, Islington.
1860 Reid, Robert, Edinburgh.
1873 Richardson, Edwin J., Duke-street.
1863 Richardson, James, Ealing.
1860 Ritson, J. Lewthwaite, Penge, S.E.
1860 Roberts, Chas. Duncan, Ramsgate.
1876 Roberts, Thomas Albert, London.
1860 Roberts, William A., Edinburgh.
1862 Robertson, James, Rochester.
1875 Robertson, J. L., Cheltenham.
1861 Robinson, J. George, Brazil.
1873 Rodway, Henry B., Torquay.
1860 Rogers, Charles, Cork-street.
1870 Rogers, C. C., Cork-st., Burlington-gardens.
1860 Rogers, Charles Deeble, Newbury.
1860 Rogers, Henry, Dorset-square.
1860 Rogers, Joseph, Hanover-square.
1863 Rogers, S. Alfred, Manchester.
1860 Rogers, T. Arnold, Endsleigh-st.
1871 Rose, Harry, Albany-street, N.W.
1863 Ross, George, South-street, E.C.
1875 Rowney, Thomas, Hull.
1863 Ryding, Frederick, Dublin.
1863 Ryding, H. Stephen, Limerick.
1860 Ryding, William, Dublin.
1863 Rymer, Samuel Lee, Croydon.

S.

1860 Salter, S. J. A., New Broad-street.
1863 Samuel, P. Wesley, Stockton-on-Tees
1860 Saunder, W. D., Lower Seymour-st.
1876 Sayles, Francis A., Margaret-st.
1863 Scholefield, James, Huddersfield.
1860 Scott, Fred. J. Clouston, Swansea.
1863 Scott, J. W., Edgware-road.
1869 Scully, J., Indian Army.
1865 Sewill, H. Ezekiel, Wimpole-st.
1860 Shortt, John, Indian Army.

1875 Silvester, S. T., Croydon.
1862 Simmons, J. J., Burton-crescent.
1863 Sims, Charles, Birmingham.
1863 Slater, G. Augustus, Burslem.
1863 Smale, H. Charles, Manchester.
1876 Smale, Moreton A., Marylebone-rd.
1861 Smith, G. W., Manchester.
1863 Smith, Henry, Leicester.
1862 Smith, Joseph, York.
1863 Smith, J. Alexander, Chelsea.
1860 Snape, Joseph, Liverpool.
1863 Southam, Richard, Mortimer-st., W.
1862 Stamper, J. Fenton, Haverfordwest.
1860 Statham, John Lee, Osnaburgh-st.
1862 Steele, Joseph, Croydon.
1876 Stevens, Lewis Wm., Swansea.
1871 Stevens, Mordaunt A. de B., Paris.
1862 Stevenson, N., Wimpole-street.
1863 Stewart, Robert E., Liverpool.
1863 Stivens, J. Charles, Chester.
1875 Stocken, James, Euston-square.
1876 Strickland, F., Boundary-rd., N.W.
1863 Stuck, J. Frederick, Liverpool.
1863 Stuck, W. Rt., Gower-street.
1863 Surenne, J. G., Edinburgh.
1863 Sutcliffe, J., Bradford, Yorkshire.
1863 Sutton, Samuel, Birmingham.
1863 Swanson, A., Isles, Cheapside.

T.

1863 Tanner, Thomas, Manchester.
1862 Tayler, Daniel, Leicester.
1867 Thompson, S. K., Highgate, Kendal.
1862 Tibbits, William, Leicester.
1869 Tomes, C. Sissmore, Cavendish-sq.
1860 Tomes, John, Cavendish-sq.
1866 Tracy, Nathaniel, Ipswich.
1870 Tuck, R. W. H., Chichester.
1863 Tuck, W. Richards, Truro.
1863 Turner, J. Smith, George-street, W.

U.

1860 Underwood, Thomas, Bedford-sq.
1874 Underwood, T. F. K., Bedford-sq.

V.

1860 Vasey, Charles, Cavendish-place.
1871 Vasey, Charles Lyon, H.M.S. "Druid."
1863 Vidler, T. Collins, Eastbourne-ter.
1864 Virgin, H. James, Oxford.

W.

1860 Walker, Gilbert, Mortimer-st., W.
1860 Walker, Joseph, Grosvenor-street.
1860 Walkinshaw, W. B. M., Prince's-st.
1875 Wallis, C. J., Blackheath, S.E.
1863 Wallis, G., Queen Anne-street.
1860 Warren, E., Pritchett, Birmingham.
1869 Washbourn, Edward N., Tunbridge Wells.
1875 Watson. D., Torquay.
1863 Weaver, George, Upper Baker-st.
1868 Webster, R. M., Colebrook-row, N.
1863 Weiss, Felix, Montague-place.
1876 Weiss, Felix Henri, Montague-pl.
1863 Wells, G. S., Kensington-gardens-square.
1863 West, Charles, Finsbury-square.
1866 West, E. Byatt, New Broad-st., E.C.
1862 West, J. T. H., Australia.
1875 Whatford, Jack H., Cavendish-sq.
1875 White, C. E., Belgrave-road.
1860 White, Richard, Norwich.
1869 White, R., Wentworth, Norwich.
1863 White, T. Charters, Belgrave-road.
1868 Whittingham, A. Watts, Hanley.
1876 Willis, Wm. Francis, Blackheath.
1875 Williams, G. A., Cavendish-place.
1863 Williams, G. J., Cavendish-place.
1860 Williams, G. Salusbury, Clifton.
1875 Williams, James, Walsall.
1866 Williams, W. C., Leamington.
1860 Williamson, William, Aberdeen.
1860 Winterbottom, E., John, Sloane-st.
1863 Wood, W. Robert, Brighton.
1860 Woodhouse, A. James, Hanover-sq.
1875 Woodhouse, Rt. Hall, Hanover-sq.
1876 Woodruff, Wm. H., Leamington.
1860 Woolfryes, Henry, Gloucester-st.

Y.

1863 Young, Gavin, Glasgow.
1875 Youngman, F., Thornton-heath.

Z.

1863 Zinkgraf, F. William, Bavaria.

LIST OF LICENTIATES IN DENTAL SURGERY.

Arranged according to the year of their Diploma.

1860.

Allen, F. Charles, Maidstone.
Allingham, James H., Manchester.
Ash, George, Great Marlborough-street.
Balkwill, F. Hancock, Plymouth.
Barrett, Henry John, Finsbury-square.
Bartlett, Ed. Barton, Connaught-square.
Bate, Charles Spence, Plymouth.
Bell, James, Grahamstown, Cape Colony.
Bennett, William George, George-street.
Brookhouse, Robert, Manchester.
Canton, A. Geo., Gt. Marlborough-street.
Cartwright, S., Old Burlington-street.
Cattlin, William, Highbury-place, N.
Cattlin, W. A. N., Brighton.
Chisholm, John Knox, Edinburgh.
Coleman, Alfred, Savile-row.
De Lessert, C. G. Wolverhampton.

Devonshire, J. Kempe, Gt. Coram-street.
Doherty, William Izod, Dublin.
Elliott, John Wilcox, Finsbury-square.
Evans, John, Albany-street, N.W.
Fitken, J. Spencer, Fleet-street.
Fletcher, J. B., New Burlington-street.
Forsyth, Wm. F., George-street, W.
Fox, Charles James, Mortimer-street, W.
Freeman, St. George, Waterford.
Hampson, J. D. C., Gloucester-pl., N.W.
Harrington, G. Fellows, Ryde.
Hepburn, Duncan Dewer, Nottingham.
Hepburn, Robert, Portland-place.
Hill, Alfred, Henrietta-street.
Ibbetson, G. A., 19A, Hanover-square.
Keene J. Joseph, Boulogne-sur-Mer.
Kernot, G. Charles, Chrisp-street, E.
King, Joseph, York.
Kyan, John Howard, Preston.
Leigh, S. George, Leeds.
Lindsay, John Burke, Dover.
Lintott, William Henry, Wimpole-street.
Longhurst, Henry B., Old Burlington-st.
Longhurst, Sidney, Old Burlington-st.
Magor, Martin, Penzance.
Matthews, Peter, Welbeck-street.
Mummery, J. Rigden, Cavendish-place.
Normansell, Frederick, Gloucester-street.
Orrock, James, Leicester.
Owen, George, Islington.
Parkinson, Edward Pickering, Brighton.
Parkinson, George Thomas, Bath.
Parkinson, James, Sackville-street.
Parsons, Robert, York-place.
Penny, George Stothert, Cheltenham.
Perkins, Henry John, City-road.
Pilling, R. C., Blackburn.
Randell, Edward, Torrington-square.
Ransom, Robert, Hanover-street.
Reid, Robert, Edinburgh.
Ritson, J. Lewthwaite, Penge, S.E.
Roberts, Charles Duncan, Ramsgate.
Roberts, William Alfred, Edinburgh.
Rogers, Charles, Cork-street.
Rogers, Charles Deeble, Newbury.
Rogers, Henry, Dorset-square.
Rogers, Joseph, Hanover-square.
Rogers, Thomas Arnold, Endsleigh-st.
Ryding, William, Dublin.
Salter, S. J. A., New Broad-street.
Saunder, W. D., Lower Seymour-street.
Scott, Frederick J. C., Swansea.
Shortt, John, Indian Army.
Snape, Joseph, Liverpool.
Statham, John Lee, Osnaburgh-street.
Tomes, John, Cavendish-square.
Underwood, Thomas, Bedford-sq.
Vasey, Charles, Cavendish-place.
Walker, Gilbert, Mortimer-street, W.
Walker, Joseph, Grosvenor-street.
Walkinshaw, W. B. M., Prince's-street.
Warren, E. Pritchett, Birmingham.
White, Richard, Norwich.
Williams, George Salusbury, Clifton.
Williamson, William, Aberdeen.
Winterbottom, E. John, Sloane-street.
Woodhouse, A. James, Hanover-square.
Woolfryes, Henry, Gloucester-street.

1861.

Barker, William, Fleet-street.
Bridgman, W. Kencely, Norwich.
Bromley, C. Henry, Southampton.
Budd, Henry, Ealing.
Bullin, Frederick, Chester.
Campbell, Walter, Dundee.
Clement, W. Salisbury, Bath.
Cobb, J. Swanston, Great Yarmouth.
Cunningham, J, Thomas, Edinburgh.
Dunn, C. William, Florence.
Fort, William, Preston.
Fox, O. Annesley, Brighton.
Goddard, H. Heygate, Northampton.
Hart, A. Daniel, Dorchester-place, N.W.
Hayward, H. Howard, Harley-street.
Hunt, William, Yeovil.
Jameson, W. Edward, Gloucester-pl., W.
Lyddon, George, Reading.
Martin, J. H. C., Erridge, Portsmouth.
Mitchell, F. William, Clapham-road.
Parker, S. Adams, Birmingham.
Robinson, J. George, Brazil.
Smith, G. W., Manchester.

1862.

Clarke, James, Nottingham.
Davis, Murray, Old Burlington-street.
Dickenson, M. de Courcy, St. Leonards-on-Sea.
Elwin, John, Southampton.
Gibbons, S. C., New Burlington-street.
Gregson, George, Harley-street.
Kirby, H. Thomas, Leicester.
Longhurst, H. C. Henry, Leicester.
Mason, J. T. Brown, Exeter.
Morgan, W. Thomas, Burwood-place.
Mosely, Alfred, Newcastle-on-Tyne.
Nichol, Wm. Henderson, Leeds.
Robertson, James, Rochester.
Simmons, J. J., Burton-crescent.
Smith, Joseph, York.
Stamper, J. Fenton, Haverfordwest.
Steele, Joseph, Croydon.
Stevenson, N., Wimpole-street.
Tayler, Daniel, Leicester.
Tibbits, William, Leicester.
West, J. T. H., Australia.

1863.

Aaronson, Andrew, Whitechapel-road.
Ash, G. Edward, Dover.
Ash, William, Great Marlborough-street.

Atkinson, J. Hastings, Leeds.
Barkley, William, Worcester.
Bonnalie, George, Chester.
Bradley, W. Tenney, Chichester.
Bridgman, F. George, Queen Anne-st.
Bright, C. Sibthorpe, Genoa, Italy.
Brown, J. Henry, Brighton.
Buckell, William, Salisbury.
Cafferata, Phillip, Sunderland.
Caldcleugh, John, Durham.
Cole, J. Fenn, Ipswich.
Cormack, Alexander, Edinburgh.
Cormack, David, Margaret-street, W.
Cox, Edwin, Preston.
Davies, E. L., Canonbury-road, N.
Dennant, John, Brighton.
Didsbury, J. Montague, Paris.
Duff, A. Marshall, Leicester.
Dykes, R. Colville, East Acton, W.
Finzi, S. Leon., Gower-street, W.C.
Forward, Reginald, Southsea.
Fothergill, Alexander, Darlington.
Fothergill, William, Darlington.
Fowler, C. Jevons, Birmingham.
Fox, G. Frederick, Gloucester.
Fox, S. B., Exeter.
Gilbert, W. James, Old Quebec-street.
Gill, Seth, Liverpool.
Goddard, William, Nottingham.
Good, J. Saxty, Kensington.
Grant, J. Sackville, Melbourne.
Hankins, Thomas, Queen Anne-street.
Hare, G. Frederick, Limerick.
Harrison, Richard, Camden-road, N.W.
Harrison, R. Eunson, Hull.
Hatfield, J. Hewett, Old Burlington-st.
Helfrich, Rudolph, Bayswater.
Henry, George, Hastings.
Hockley, Anthony, Gt. Marlborough-st.
Holford, J. James, Orchard-street, W.
Holford, W. Taylor, Half Moon-street.
Hoole, Stephen, Old Burlington-street.
Keeling, Geo. R., Epsom.
Kempton, H. T. K., Cavendish-place.
King, E. H. Green, Stratford-place, W.
Kirby, S. Amos, Bedford.
Leatherby, W. L., Mornington-crescent.
Lindup, George, Harley-street.
Lloyd, Augustus, Boro' High-street.
Manton, J. Nathaniel, Wakefield.
Margetson, William, Dewsbury.
Martin, Edwin, Southsea.
Matthews, A. M., Bradford, Yorkshire.
Medwin, A. George, Blackheath.
Moore, Leopold, Grosvenor-street.
Moore, W. Vanderkemp, Plymouth.
Morley, Henry, Derby.
Moseley, Gillam, Sheffield.
Murphy, A. Hallam, Derby.
Murphy, J. E., Moseley, Derby.
Myers, L. James, St. Albans.
Nightingale, C. Gibbs, Shrewsbury.
Nolan, W. Henry, Berners-street.
Ollive, Henry J., Chelsea.
Palmer, T. W. G., Cheltenham.
Parks, W. John, Newington-crescent.
Perkins, William, Baker-street.
Petty, Frank, Reading.
Pillin, L. Burgoyne, Conduit-street, W.
Richardson, James, Ealing.
Rogers, S. Alfred, Manchester.
Ross, George, South-street, E.C.
Ryding, Frederick, Dublin.
Ryding, H. Steven, Limerick.
Rymer, Samuel Lee, Croydon.
Samuel, P. Wesley, Stockton-on-Tees.
Scholefield, James, Huddersfield.
Scott, J. Wyatt, Edgware-road.
Sims, Charles, Birmingham.
Slater, G. Augustus, Burslem.
Smale, H. Charles, Manchester.
Smith, Henry, Leicester.
Smith, J. Alexander, Chelsea.
Southam, Richard, Mortimer-street, W.
Stewart, Robert E., Liverpool.
Stivens, J. Charles, Chester.
Stuck, J. Frederick, Liverpool.
Stuck, W. Robert, Gower-street.
Surenne, J. G., Edinburgh.
Sutcliffe, James, Bradford, Yorkshire.
Sutton, Samuel, Birmingham.
Swanson. A. Isles, Cheapside.
Tanner, Thomas, Manchester.
Tuck, W. Richards, Truro.
Turner, J. Smith, George-street, W.
Vidler, T. Collins, Eastbourne-terrace.
Wallis, George, Queen Anne-street.
Weaver, George, Upper Baker-street.
Weiss, Felix, Montague-place.
Wells, G. S., Kensington-gardens-square.
West, Charles, Finsbury-square.
White, T. Charters, Belgrave-road.
Williams, G. J., Cavendish-place.
Wood, W. Robert, Brighton.
Young, Gavin, Glasgow.
Zinkgraf, F. W., Bavaria.

1864.

Clarke, J. Clough, Nottingham.
Hele, Warwick, Carlisle.
Reboul, A. Percy, Islington.
Virgin, H. James, Oxford.

1865.

Bell, R. John, Canterbury.
Sewill, H. Ezekiel, Wimpole-street.

1866.

Apperly, Ebenezer, Stroud.
Bartlett, W. P., Hyde Park.
Harding, T. H. G., Park-square, N.W.
Lane, E. F., Keppel-street.

M'Adam, G. Christopher, Hereford.
Oliver, J. Cardell, Cardiff.
Read, Thomas, Holles-street, W.
Tracy, Nathaniel, Ipswich.
West, E. Byatt, New Broad-street, E.C.
Williams, W. Caleb, Leamington.

1867.

Freeman, B. Wright, Dublin.
Hooper, H. John, Lee-green, S.E.
Moon, Henry, Finsbury-square.
Thompson, S. K., Highgate, Kendal.

1868.

Payne, G. William, Ebury-street, S.W.
Webster, R. M., Colebrooke-row, N.
Whittingham, A. Watts, Hanley.

1869.

Baylis, George William, Natal, Africa.
Chisholm, William, Edinburgh.
Scully, J., Indian Army.
Tomes, C. Sissmore, Cavendish-square.
Washbourn, E.N., Tunbridge Wells.
White, Richard Wentworth, Norwich.

1870.

Bartlett, Edward, Connaught-square.
Bartlett, William, Connaught-square.
Clark, Chas. Lane, Upper Berkeley-st.,W.
Ebbetts, Francis Frederick, Margaret-st.
Forster, George Graham, Durham.
Hepburn, David, Edinburgh.
Lyons, Isaac Isidor, Finsbury-place, E.C.
Rogers, C. C., Cork-st., Burlington-gdns.
Tuck, Richard, W. H., Chichester.

1871.

Cartwright, S. H., Old Burlington-street.
Gingell, George Moreton, Osborn-street.
King, Richard, Francis Henry, Newark.
Marsh, Henry, Manchester.
Rose, Harry, Albany-street, N.W.
Stevens, Mordaunt A. de B., Paris.
Vasey, Charles Lyon, Surgeon H.M.S. "Druid."

1872.

Baylis, Leighton, Natal, Africa.
Coles, Jas. Oakley, Upper Wimpole-st.,W.
Harding, William Edward, Shrewsbury.
Hutchinson, Samuel John, Brook-street.
Poundall, Wm. Lloyd, Brighton.

1873.

Barrett, Ashley William, Finsbury-sq.
Binns, Edmund, Middlesboro'.
Brownlie, James R., Glasgow.
Bruce, Peter, Valparaiso, S. America.
Fothergill, John Alexander, Darlington.
Gibbings, Ashley, Stratford-place, W.
Hepburn, David, Portland-place.
Kissack, Edward T., Deansgate.
Merson, James, Southmolton, Devon.
Merson, William, Brighton.
Mummery, John H., Cavendish-pl.
Payne, Henry Peter, Southampton.
Phillips, Arthur Robert, Cavendish-sq.
Richardson, Edwin Joseph, Duke-street.
Rodway, Henry Barron, Torquay.

1874.

Alabone, Alfred, Newport, I. of Wight.
Bellaby, G. L., Nottingham.
Bryant, Frank, Derby.
Canton, Fred. A., Southampton-row.
Cartwright, A., Old Burlington-street.
Geldard, Richard H., St. Austell, Cornwall.
Underwood, Thos. F. K., Bedford-sq.

1875.

Allworth, Alfred, Lyndhurst-road, S.E.
Atkinson, Jonathan, Ottley, Kendal.
Baylis, Henry M., Tunbridge Wells.
Bennett, W. C. S., George-street.
Bödecker, T. A., Holles-street, W.
Canton, Frederick, Marlborough-street.
Carteighe, John, Stratford-place.
Cook, Augustus, Upper Norwood.
Corbett, Joseph John Francis, Cork.
Eskell-Clifford, H. H., Dublin.
Foss, Alfred, Stockton-on-Tees.
Fox, Walter Henry, Gloucester.
Gaddes, Thomas, Seymour-street, W.
Gill, Henry Beadnell, Bow-road.
Harding, G. H., Acton, near Stafford.
Hart, Alfred A., Newington-green.
Henry, William Francklin, Cornhill.
Keeling, George Ratcliffe, jun., Epsom.
King, Thomas Edward, York.
Lipscombe, John Moore, Kilmarnock.
Morris, Wm. G., Winchester-street, S.W
Pearman, George Benjamin, Chelsea.
Phillips, Edward James M., Liverpool.
Robertson, James Lewis, Cheltenham.
Rowney, Thomas, Hull.
Silvester, Simeon Talbot, Croydon.
Stocken, James, Euston-square.
Wallis, Charles James, Blackheath, S.E.
Watson, David, Torquay.
Whatford, Jack Henry, Cavendish-sq.,W.
White, Charles Edward, Belgrave-road.
Williams, James, Walsall.
Williams, G. A., Cavendish-place.
Woodhouse, R. H., Hanover-square.
Youngman, Francis, Thornton-heath.

1876.

Adams, Frank Haydon, Budleigh Salterton, South Devon.

Bateman, George Wm., Elgin-cres., W.
Birt, Stephen, Leamington.
Brown, Richard, Tavistock, Devon.
Burrows, Walter Shoppee, New-road, E.
Carter, Thomas Scales, Leeds.
Farebrother, Horace John L., Stockwell.
Furber, Alfred Wm., Kentish Town-rd.
Gartley, John Alexander, Sackville-street.
Halliday, Middleton Wood, Nottingham.
Jewers, Ernest Edwin, Plymouth.
Marriott, George Herbert, Albion-st., W.
Mason, Henry Biging, Exeter.
Roberts, Thomas Albert, London.
Sayles, Francis Austin, Margaret-street
Smale, Moreton Alfred, Marylebone-rd.
Stevens, Lewis Wm., Swansea.
Strickland, Frank, Boundary-road, N.W.
Weiss, Felix Henri, Montague-place.
Willis, William Francis, Blackheath.
Woodruff, William Herbert, Leamington.

The following examples of the questions put by the Dental Examining Board at past *vivâ voce* examinations have been kindly supplied to us by successful candidates for the guidance of future students. We trust they in their turn, if successful, will assist in extending our collection of questions.

Dental Surgery.

What is caries, its symptoms, and treatment?

Pulp; treatment when exposed by caries or otherwise; capping and destruction of pulp; material used in capping, &c.

The pulp being exposed by caries or otherwise, what would be your treatment? Under what circumstances would you drill into the pulp cavity?

What escharotics would you use to destroy the tooth-pulp?

What symptoms, local and general, would lead you to diagnose between Inflammation of the Pulp and Inflammation of the Investing Membrane of the Root or Roots of the Teeth?

What would be your treatment for a fungous granulation of the tooth-pulp?

State the pathological changes that occur in the pulp as the result of inflammation.

Periostitis, diagnosis and treatment of.

How would you pivot a tooth? steps of the operation, conditions that might arise, and treatment of those conditions. Pivoting, when contraindicated.

How would you diagnose idiopathic neuralgia from that caused by a carious tooth?

Practical questions on gold foil, adhesive and non-adhesive, and the different methods of working them; also instruments best adapted for each.

Questions on extraction of teeth, more especially wisdom teeth.

Questions on extraction of teeth with especial questions on where the elevator is used; how would you use it; in what cases? Would you use it for upper wisdoms? Your reasons for not doing so, &c.

The accidents of extractions. Paralysis of inferior dental nerve following extraction, its symptoms; treatment.

Alveolar abscess. What is abscess? What forms the wall of the sac? Where do you generally find it? General course an abscess runs. If you had two teeth equally decayed and an abscess opening between the two, how diagnose the offender?

Regulating cases. How would you turn a tooth besides making a regulating case for it?

Which would you remove, supposing the incisor teeth were very much protruded and all the other teech were sound and you wanted to bring the front teeth in?

What may have been the possible cause of the protrusion of the front teeth?

What would be your treatment in closure of the jaws by a cicatrix; and what other things may close the jaw?

What are the different stages set up when a tooth aches?

What is the appearance of the opening, supposing the abscess to have burst through the cheek?

How would you diagnose inflammation of the pulp, and if caused by the pressure of a filling what treatment would you use?

What is the cause of pus exuding from the alveolus and around the neck of a tooth without abscess, and what is the treatment?

Does contraction take place in the jaw after the removal of temporary teeth?

What has been done in the mouths of the models shown?

What is the treatment of chronic hypertrophy of the gums?

What is the treatment of a congested and irritable state of the gums?

Shown specimens and preparations of ossification of the pulp; polypus of pulp, &c., &c., and asked cause and treatment.

Exostosis, diagnosis and treatment of.

What is antral abscess? Is it a true abscess? The origin of the sputu n.

Describe the casts numbered 1, 2, 3, and 4; and state how you would treat the irregularities of the teeth which they exhibit.

How would you treat an obstinate case of hæmorrhage, after the extraction of a tooth or teeth, locally and constitutionally?

How would you diagnose a tumour in the antrum? What are the leading characteristic signs?

How would you treat a syphilitic cleft palate constitutionally: would you be inclined to have recourse to mechanical appliances?

In an exceptionally difficult case of eruption of a wisdom tooth, where the first and second molars still remained and both perfectly sound, how would you proceed?

What takes place regarding the growth of the jaws and eruption of the permanent teeth after the premature loss of the temporary front teeth—say incisors and canines lost from violence at about two years of age? Would the permanent teeth appear in regular or irregular position?

Questions asked on the order and time of eruption of temporary and permanent teeth.

What is the treatment of hæmorrhage from the socket of an extracted tooth?

Why does an abscess open sometimes externally?

Shown specimens of *radicular odontome.*

How is it formed, and what is its structure?

What structure is it that probably secretes the fluid in a dentigerous cyst?

Diagnosis and treatment.

What is the treatment for fungous growth of pulp?

Treatment for congested gums.

In what way does aconite act?

Shown a model of a child's upper jaw, with the two central incisors standing within the teeth of the lower jaw, and asked what means you would take to move them into proper position.

Shown a first lower molar of the right side, and asked what tooth it is. How do you know that it is a first molar, and not a second or third?

What means should you make use of in order to arrest hæmorrhage after the extraction of a tooth?

Shown specimen of alveolar abscess in spirit—how caused, and treatment? What formed the sac?

Dislocation, unilateral and bilateral, symptoms and treatment.

Shown specimen of epulis in spirit—how caused, and its treatment? Does an epulis spring from any other tissue than periosteum?

Shown specimen of exostosis—how formed, symptoms, and treatment?

Explain the pathology of specimen shown, and the cause of the disease by which it had been affected. (Specimen was a lower jaw, the alveoli of which was much absorbed, and there were depositions of tartar upon the necks of the teeth.)

Describe the structure of an epulis and polypus.

What is a dentigerous cyst? causes, contents, &c.

Can a dentigerous cyst be present without any teeth being absent? if so, give cause.

What is an odontome? give classification.

Earlier stages of alveolar abscess.

Suppose a woman about 23 came to you complaining of pains in the neck and arm, and with difficulty in opening her mouth; diagnosis and treatment.

What would be the consequence if this was left too long?

Surgery.

What is a ranula? its appearance.

Symptoms and treatment of tonsillitis.

What is an epulis? appearance and treatment.

Mention some of the tumours which we find in the upper jaw, malignant and non-malignant.

How would you diagnose a tumour of the antrum?

Symptoms of disease of the temporo-maxillary articulation.

Disease of jaws, necrosis, &c. The effects of tertiary syphilis on the bones of the face, soft tissues, and teeth. Tongue-tie, operation for. Diseases of tonsils. Parotitis.

Is it necessary to remove bone in consequence of abscess in the substance of the jaws?

Disease of mucous membrane of the mouth in early years.

Ulcers and their treatment, especially those of the tongue, how caused and treated.

Carious teeth and discharge from the nose, how would you account for latter?

Suppose a young man, say 21, came to you with great difficulty in opening his mouth—pain and swelling of the jaw, rheumatic pains in the shoulder, &c., what would be the cause of this and state treatment?

What is a dentigerous cyst? what is it formed by?

Have you ever seen the tongue furred? What forms the fur? And, also, what is it caused by?

What would be your treatment of an ulcer of tongue, caused by ragged edge of a carious tooth?

Describe the action of nitrate of silver if applied to an ulcer?

What kind of deposit do you get from the salivary glands, and where does it accumulate in the greatest abundance?

Do you ever get an obstruction of the ducts of the salivary glands? And if so give the treatment.

What is a ranula? And would you, as a Dental Surgeon, operate for its removal?

Fractures of the jaws, symptoms, causes, relatively frequent parts of the diagnosis, prognosis, treatment by all the methods used.

Epithelioma of the lower lip, pathology, causes, symptoms, treatment.

State the manner of insertion of harelip pins, and what is the object to be gained by them?

Should they include the mucous membrane of the lip?

State the differences between syphilitic and congenital cleft palate; the treatment to be adopted?

Does the voice become more affected in one or the other, and which is most capable of cure?

Dislocation of the jaw, symptoms, causes, pathology, and methods of treatment?

Is it ever without deformity, and does a partial dislocation ever occur, and at what period of life?

Questions on epulis, diagnosis, pathology, and treatment.

Ulcers of tongue, diagnosis between 1st, simple ulcer caused by the ragged edge of a decayed tooth, 2nd, syphilitic ulcer, and 3rd, epithelioma, and the treatment indicated in each case.

Harelip, treatment. Which harelip pin would you put in first, and how deep would you pass it?

Do you get an ulcer of the tongue in primary, secondary, or tertiary syphilis?

Cleft palate, treatment. What muscles do you divide in staphyloraphy? How would you treat a cleft produced by syphilitic ulceration?

What is inflammation? How would you diagnose it? What is the most constant sign of inflammation?

What is abscess ? Their diagnosis and treatment.

Would you leave fragments in fractures of the jaw ?

Diagnosis and treatment of cystic disease of lower jaw.

How would you tell an exostosis of the superior maxilla ?

Why is necrosis less likely to occur after fracture of the upper than of the lower jaw ?

What conditions of the teeth give rise to chronic closure of the jaws ? How would you treat such closure, and the conditions giving rise to it ?

What are the local symptoms of periostitis of the lower jaw ? and what are s effects ?

Have you seen the superior maxilla removed, and what incisions were made ?

About what age does exanthematous necrosis usually occur ? Are the manent teeth lost as well as the temporary in necrosis following the exanmata ?

Give the different causes of necrosis.

How does repair take place in the upper and lower jaws respectively ?

In the adult, do we get bone formed in either or both jaws after necrosis ?

What are the symptoms of concussion of the brain ?

Can you tell if a patient is suffering from concussion or compression ?

If a foreign body gets into the larynx what are symptoms and treatment ?

If it passes to the lungs which side would it go, and why ?

How is tracheotomy performed, and for what purpose ?

Pathology, and different forms of dislocation and treatment ?

What is otorrhœa ?

Have you ever seen a case of abscess of the antrum ? How caused, and your treatment.

Have you ever seen chloroform administered ? In the event of a patient not recovering, what treatment should you adopt ? How does death take place ?

How would you diagnose fibrous tumours of the gums ? Give their structure, the cause and treatment.

Cancrum oris—how caused ? Diagnosis and treatment.

How would you treat fracture of the upper jaw ? Which jaw is most liable to necrosis ?

Give treatment of severe hæmorrhage after extraction. How would you proceed, mode of plugging socket, &c. ?

Does inflammation of antrum ever occur independently of diseased teeth ?

What do you understand by the term necrosis ?

What are the causes of necrosis of a bone ?

What occurs in acute periostitis ?

What would take place if a portion of the body of the lower jaw became necrosed ?

What incisions would you make in order to remove the sequestrum, and how would you remove it ?

How is the new bone formed ?

What diseases have you seen in the mouth ?

How would you treat a case of simple stomatitis ?

Give a prescription for an aperient.

What are the symptoms of irritation of a tooth ?

What are the causes of irritation of the periosteum of a tooth ?

Dental Anatomy.

Shown model to determine age.

What are supernumerary teeth ?

What are supplemental teeth ?

Differences in the two classes.

If a tooth is fractured far down in the socket is it likely to unite ?

If all the temporary teeth are removed, say at 2½, will jaw become contracted ?

What are the different views concerning membrana præformativa ?

In degeneration of the pulp, what are the principal changes that occur in vessels?

How is absorption effected?

To what issue does the formation of secondary dentine tend?

Describe the structure of cementum.

Describe the development of dentine; the manner calcification takes place course of tubes, their terminations and anastomosis; contents of tubes.

Describe an odontoblast cell, and mention the processes, and state their functions.

What is the granular layer?

Describe the development of enamel.

Describe the membrana eboris and arrangement of cells. What part does it take in development of dentine?

Structure of periosteum of socket, and its nerve supply.

Structure of tooth pulp, its vascular and nervous supply.

Do you find Haversian canals existing in the cementum in exostosis?

Specimen shown under microscope—specimen of secondary dentine—how formed and structure?

Give me the course of the dentinal tubes in the crown, neck, fang, and the fork between the two fangs of a lower molar.

How do the dentinal tubes end in the crown, neck, and fang of a tooth, respectively?

Describe the course of the enamel-fibres.

What is osteo-dentine, and where is it found?

How is secondary dentine formed?

What causes the formation of secondary dentine?

In what form does secondary dentine appear in the pulp?

What relation does dentine of repair bear to the pre-existing dentine?

Shown specimens under the microscope of bone, dentine, and osteo-dentine.

Dental Anatomy and Physiology.

Describe the microscopical structure of the tooth-pulp. Structure and formation of secondary dentine. Under what circumstances does the pulp cavity become filled with osseous tissue?

Describe structure of cementum and of bone. How would you distinguish one from the other microscopically?

In geminate teeth what constitutes the bond of union?

In what condition are the jaws of a three months' fœtus?

When is primary dentition completed?

In what respect in the early condition of growth are the enamel cement and dentine alike?

What is the structure of the three pulps from which the dental tissues are formed?

In what way do the cells of the three pulps differ, &c.?

Given models to determine ages.

What is the structure of dentine?

Where does calcification begin in the dentine, enamel, and cementum?

At what age do you find the first appearance of dental organs?

When is permanent dentition completed?

Age at which the temporary canine is cut?

How does development take place in each of the three pulps, from within outwards, or *vice versâ?*

Describe the manner of deposition of the earthy salts in enamel dentine and cement.

What are the courses of the contour markings in the enamel and dentine?

How do the dentinal tubules end?

What is the surface of dentine like when the enamel has been removed from it?

What is found at the summit of the elevations mentioned?

Questions on the *gums*. Structure, epithelium, and papillæ of gums; blood-vessels to ditto, &c.; nerve supply, &c.

Questions on the *periosteum*, &c.; structure, &c.

Enamel, structure of, and calcification of enamel fibres, &c.

Questions on dentinal fibres and their sheaths.

Arrangement of nerves and vessels in Dental pulp.

Are the nerves of the pulp continued on into the dentine?

Questions on the membrana eboris.

Shown several teeth to give their position in the mouth, and point out the distinctive features of each.

Describe the action of mastication.

Describe the articulation of the jaws in man, the tiger, and the capybara.

What are the specific characters of the cell-nuclei in the formative organs respectively of the dentine, the enamel, and the cementum?

Describe the anatomical condition of the lower jaw in relation to the teeth, both temporary and permanent, in a child five years of age.

Name the different structures of a tooth, their chemical compositions, and percentage of animal and earthy matter.

Dilacerated teeth, shown specimen of, and asked during what period it had occurred?

What is the difference between a supernumerary and a supplemental tooth?

Anatomy and Physiology.

Give the muscles employed in deglutition.

Shown right superior maxilla, asked its bony attachments, and nerve in relation with it.

Point out where the facial artery crosses the lower jaw.

What nerves pass out of the skull through the sphenoidal foramen, and also through the foramen rotundum and foramen ovale?

Where does Steno's duct open, also Wharton's duct?

By how many ducts does the sublingual gland open into the mouth?

What muscles depress the jaw?

What muscles protrude the jaw?

What muscles draw back the jaw?

What muscles fix the hyoid bone?

What muscles protrude tongue?

What muscles draw in and draw back tongue, and give their nervous supply?

Chemical composition of saliva. What other glands besides the salivary situated in the oral cavity, their use and structure. Deglutition, changes of shape undergone by pharynx, &c. Alimentation. Structure and nervous supply of œsophagus and stomach. Gastric juice, composition and use. Structure of a gastric follicle. Nerve of sensation to face. Symptoms of paralysis of the motor nerve of the face. Soft palate. Nerve supply to upper and lower teeth.

Describe the lower jaw, &c. Temporo-maxillary articulation. Difference in fœtus and adult.

Tongue, structure, and nerve supply.

What bones enter into the formation of the joint?

How many, and what, are the ligaments of the joints, their origin and insertion?

Is the interarticular ligament ever perforated?

What are the muscles of mastication? Give the origin, insertion, and nerve supply of each.

Given a lower jaw to mark out the exact insertions of internal pterygoid, external pterygoid, buccinator, masseter, digastric, &c.

Microscopical specimens shown; what are they, and from what portion of tooth did they come asked.

Nerve of supply to ear.

Describe actions and use of buccinator. Give the course of inferior dental nerve. Name the muscles of the soft palate and give their nervous supply.

How does the inferior maxillary nerve leave the skull?

What passes through the foramen rotundum?

Does the superior maxillary nerve supply any of the muscles of mastication?

What arteries supply the incisor and molar teeth of the upper maxilla?

What are these arteries branches of?

Describe the course of the internal maxillary artery with regard to the ramus of the jaw and pterygoid muscles. Name all its branches in which it ends.

What nerves, vessels, arteries, and veins are in relation with the parotid gland?

What does the infra-orbital artery anastomose with?

What other arteries supply the face besides the facial?

What does the venous blood of the face enter, and what vein does it eventually enter?

What is the upper surface of the palatal process of the superior maxilla like?

What fits into the groove described?

Give the relations of the vomer?

How is the septum of the nose completed?

Is that septum always straight, and, if not, how may the deviation be accounted for?

In harelip what forms the portion between the two fissures?

How would you treat that portion if very much protruded?

Questions on the bones. Nasal bones, articulations, &c. What bones form the hard palate? With what bones does the palate bone articulate, and what fossæ does it enter into the formation of?

Pillars of fauces, what formed by.

Tonsils, situation of, structure, glands of, &c.

Œsophagus and pharynx nerve supply, &c.

What bones form the septum of the nose?

What bones enter into the formation of the orbit?

What is the distribution of the glosso-pharyngeal nerve?

What is the course of the dental canal? Its contents—their origin and distribution.

Describe the ramus of the lower—the muscles connected with it—their origin, insertion, and action.

Shown preparation to point out Steno's duct, transverse facial artery, and facial nerve. Where does the latter escape from the skull?

Describe the structure of the salivary glands, their situation and relative size, the course and terminations of their ducts, and the influence of the saliva on food.

The Candidates are also asked various questions on the general anatomy of the head and neck from dissections.

Taken over the cranial nerves, more particularly the branches of the fifth.

How many ducts are there to the principal salivary glands?

Do the cells in the ducts belong to the secreting apparatus?

Are the glands always secreting?

Sinuses of the skull and blood supply.

What bones close in the opening of the antrum?

What forms the nasal duct?

Is there any difference in structure between lachrymal and salivary glands?

What is there peculiar about the salivary glands?

Point out the bones which enter into the formation of the base of the skull.

What bones form the pterygoid fossa?

How many turbinated bones are there? Which of them exist as separate bones? What are they lined with? The kind of epithelium, and name the openings into the meatus.

Describe how the mucous membrane of the nasal fossa is continuous with that of the œsophagus and larynx, &c.

What is the length of the œsophagus structure, &c.? Which coat is the thickest?

Describe the movements the pharynx undergoes during deglutition.

Give the relations of the œsophagus.

How many openings are there into the pharynx?

Describe the movements of the larynx.

The length. Trachea: how it terminates, which bronchi is the largest and longest, where do they end, and how many lobes, and the structure of the lungs.

Describe the tongue and its mucous membrane, and enumerate the muscles, intrinsic and extrinsic. Do the anterior ethmoidal cells communicate with the posterior ethmoidal?

Point out the bones that enter into the formation of the orbit.

What foramen open into the orbit, and what structures pass through them?

What is the course and distribution of the orbital branch of the superior maxillary nerve, and is it connected with any other nerves?

What bones bound the spheno-maxillary fissure?

Does the superior maxilla ever articulate with the sphenoid? Explain how it does so.

Name the muscles of the face, and point out their origin.

What do you find beneath the levator labii superioris proprius?

Give me the insertion of the occipito-frontalis muscle.

Give me the course of the facial artery on the face, and name its branches.

Do the coronary arteries lie nearest the skin or the mucous membrane of the lips?

Where does the facial vein commence? and what relation does it bear to the artery? and where does it empty itself into?

How is the external jugular vein formed? Give me its relations, and where does it empty itself?

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The following were the papers set to the candidates at the examinations for the Dental Diploma held on the 1st February and 22nd June, 1876.

Dental Anatomy and Physiology.

5 to 8 o'clock p.m.

(February.)

1. Describe the mode in which the temporary teeth are shed; and mention the different theories advanced to explain the process.

2. What is meant by the term "Calcification?" State the peculiarities of this process as it occurs in the formation of primary dentine.

3. What is the chemical composition of enamel? Describe its minute structure and mode of development. Describe also the histological characters of the enamel organ.

(June.)

1. Explain the meaning of the following terms in relation to tooth development:—Papilla, Groove, Follicle, Loculus, Enamel-germ, Membranous Sac, Pedicle, Cavity of Reserve, Dentine-cap, Eruption.

2. Describe the typical characters of an incisor, canine, molar, and premolar tooth. How would you distinguish an upper from a lower canine, an upper from a lower premolar, the right from the left in each case? What is there distinctive between the crowns of the first and second lower premolars, and the fangs of the first and second upper premolars?

3. Describe the development and structure of the alveolo-dentar membrane; and give the different theories respecting the nature of the cuticula dentis.

Dental Pathology and Surgery.

5 to 8 o'clock p.m.

(February.)

1. What injurious results to the teeth and contiguous structures may arise

from the wearing of regulating plates and artificial teeth? How would you avoid or remedy such results?

2. Name the salivary glands. State the constituents of normal and abnormal saliva, and how the latter may affect the teeth.

3. A child, ten and a half years of age, presents himself with a general crowded state of the teeth. There is no such absolute deformity as to make immediate extraction unavoidable, but sufficient to render it almost certainly necessary at some time in the progress of the case. State what permanent teeth you would expect to find cut at the above age, and on what general rules you would proceed in the treatment of the case.

(June.)

1. State what you know respecting necrosis of the teeth.

2. Describe concisely the operation of pivoting teeth; name the teeth which admit of this operation, and the circumstances to be specially regarded in its performance.

3. Describe the physical and chemical characters with the microscopical appearances of carious dentine. What are the physiological phenomena that occur during the process of decay?

Anatomy and Physiology.

2 to 4 o'clock p.m.

(February.)

1. Describe the origin, course, and insertion of the temporal muscle; and give its relations and action. State the sources from which it receives its vascular and nervous supply.

2. Enumerate the glands pouring their secretion into the mouth; and describe their structure, and the nature of the secretion of each.

(June.)

1. Describe the articulation of the lower jaw; and mention the structures in immediate relation with it.

2. Describe the act of deglutition; and mention the muscles concerned in it.

Pathology and Surgery.

2 to 4 o'clock p.m.

(February.)

1. From what parts of the jaws may exostoses grow? Describe their structure.

2. How is fracture of the lower jaw usually produced? State what parts may be broken, and how you would treat each form of fracture.

(June.)

1. Mention the causes of necrosis of the inferior maxilla; and describe the symptoms and course of the disease.

2. State how you would distinguish and treat syphilitic ulcers of the tongue.

CONDENSED LIST OF BOOKS FOR A DENTAL STUDENT.

Anatomy.—Gray's Anatomy. Heath's Practical Anatomy.

Physiology.—Kirkes' Manual of Physiology; edited by Morrant Baker.

Chemistry.—Fowne's Manual of Chemistry.

Surgery.—Druitt's Surgeon's Vade Mecum. Heath's Injuries and Diseases of Jaws.

Histology.—Stricker's.

Metallurgy.—Makins' Manual.

Dental Surgery.—Tomes's Manual. Harris's Principles and Practice of Dental Surgery.

British Journal of Dental Science.

No. 244. LONDON, OCTOBER, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London
Ophthalmic Hospital, and to the Central London
Ophthalmic Hospital.

(*Continued from p.* 450.)

Subsection 4.—*Cysts.*

Solitary cysts occurring in this cavity have most frequently been found to be dentigerous, *i.e.* a misplaced tooth-sac has found its way, through the alveolar ridge, into the cavity of the antrum, and has there developed into a cyst in the process of growth.

With regard to the *dentigerous cysts,* it has been proved by Mr. James Salter (" On the Impaction of Permanent Teeth in the Substance of the Maxillary Bones," by S. J. A. Salter, in 'Guy's Hospital Reports,' vol. v, 3rd series) that " the cysts only arise when the tooth or teeth associated with them are embedded in the jaw-bone; they do not occur after the tooth has pierced the gum. The embedding of a tooth in the bone does not necessarily give rise to serous collections, for that is by no means an uncommon occurrence, whereas dentigerous cysts are rare. There appear to be three circumstances which may either of them produce impaction of a tooth in the substance of the maxillary bones: the tooth may be originally developed too deep in the body of the jaw; or it may grow obliquely, and so fail to reach the alveolar margin; or again the position of the tooth may be normal, but from some arrest of development of the fang it may fail to reach the alveolar edge and so remain permanently embedded in the jaw."

Hence it is generally the permanent teeth that give rise to dentigerous cysts, and therefore, in a case of cystic distension of the antrum, the presence of a temporary, in the position of a permanent, tooth, at a period when the complete set should have taken their places in the row of permanent teeth, will afford strong presumptive evidence that the mischief is due to the impaction of its successor in the body of the jaw. The absence of a tooth that should be normally present, will afford similar evidence, for under these circumstances the temporary tooth will have been shed at the usual period and, its successor not appearing, there is every reason for supposing that it has been arrested in its progress to the alveolar border by one of the causes above alluded to.

A consideration of these curious and valuable deductions from observed cases will aid materially in forming a diagnosis in any given case of distension of the antrum by collections of a fluid nature, and will also assist us in directing the treatment of particular cases.

In one or two cases, cysts have appeared to originate by the conversion of old abscesses, connected with decayed teeth, into cystic growths. This appears to be the case in a specimen in St. Thomas's Hospital Museum. A decayed molar lies immediately below the cyst in the antrum, and the cyst itself appears to be adherent to the fang of the tooth. The same was found to be the case with another larger cyst, the cyst being attached opposite a decayed first molar. In these cases the progress of the growth of the cyst is slow, and, especially in the last-named variety, little trouble is likely to be caused by their presence, which may only be discovered after death.

A case illustrating the formation of this kind of cyst is related in the 'Dental Cosmos,' by Dr. Chase, of Iowa City, U.S. This gentleman, on drawing a molar tooth, was surprised to find that he had brought away with it " a large quantity of alveolar substance, the bicuspid root, and a fibrous connective tissue tumour, nearly an inch in diameter, attached to the tooth, and enclosing two of the roots." (See woodcut and notes of the case in Dr. Garretson's work 'On the Mouth, Jaws,' &c., p. 351.)

The pathology of the case, as inferred by Dr. Chase, is that " the tooth decayed to the pulp cavity; that the pulp, after repeated inflammatory attacks, died. Putrefaction of that organ occurred, provoking periodontitis; after awhile suppuration occurred, and the disease became chronic. The peridonteum became thickened and spongy, continued irritation caused a proliferation of connective tissue corpuscles, thus eventuating, finally, in the formation of the cyst." The following is the case referred to:

An Irishwoman, æt. 40, came to have the right first upper molar extracted. I found her teeth in a bad condition generally: they were decayed and loose, and the gums congested. This particular tooth was decayed and very loose. On pressing it, the alveolus seemed to move with the tooth. Adjoining it, in front, was the root of the second bicuspid, the crown gone. As she was of that class who make no attempt to preserve their teeth, I extracted the molar without hesitation. She had told me that her "jaw" had ached for three or four months previous to this time. On applying the forceps the beaks readily passed under the gums without lancing, and the tooth, much to my surprise, came away with a very slight application of force. But this surprise was not equal to my astonishment, when I saw what I had brought away with the tooth, namely, a large quantity of alveolar substance, the bicuspid root, and a fibrous connective tissue tumour, nearly an inch in diameter, attached to the tooth, and inclosing two of the roots, namely, the posterior buccal and the palatine roots. After being in alcohol three days the tumour was nearly white, and had shrunken to one third of its original size. On cutting it open it was found filled with a solid structure. The consistence was that of tubercle, or pressed cheese-curd; the colour light yellow, tinged in most parts with red. The roots within the tumour were nearly free and covered with thin periosteum, which had thickened into a loose spongy mass, extending even to the base of the body of the tooth. The appearanee was like that of roots involved in alveolar abscess. The walls of the tumour were not composed of detached dental periosteum. There were, apparently, two coats, the outer fibrous, like periosteum; the inner a mucous one, like the lining of the nasal cavity.

Dr. Garretson (op. cit., p. 350) states that he himself "removed a cyst from the antrum of a young man, and that it seemed to spring from the root of the second molar tooth, or its immediate neighbourhood; the mucous membrane had been dissected up and covered the cyst as a reflex tunic."

In all these cases, however, there was no external evidence of cystic growth, such as enlargement of the bony walls of the antrum, or obstruction in the nostrils, but they have very great interest in a pathological point of view, and indicate the possible origin of some of these cases of distension of the antrum with fluid.

There is, however, another form of cystic growth, described by Virchow as *vesicular polypus*, which, from the tendency which all polypi have to increase in bulk, is probably in some cases the commencement of those enlargements of the antrum that are generally described as dropsy, a designation, by the way, altogether inappropriate, implying, as it does, a false notion of its pathological significance and etiology. They are thus described by the author above named :

"There is no mucous membrane which cannot, according to circumstances, produce follicular cysts and polypi, and it it would occupy much space to pass in review all these particular cases. Therefore, I shall confine myself to mentioning the places where the development of these tumours assumes a particular character, or where it becomes of serious importance. This is the case in the *antrum of Highmore,* where these products are relatively frequent and assume all the forms which we see in the uterus in affections of the follicles of Naboth. We find, then, in the wall of the maxillary sinus, vesicles sometimes solitary, sometimes multiple, which are filled with a clear or opaque mucus, or with a purulent or epithelial mass. These vesicles spring up by degrees from the surface, take on the form of molluscous growths and polypi, and these polypi become at last so large as to fill up the whole of the cavity. These large vesicles have not ordinarily such thick contents; the mucus softens and forms a thinner and more watery liquid. If the morbid product increases more and more, the sinus can sometimes no longer hold it, and dilatation thereof results, accompanied by atrophy of the bone. This condition appears to be that one which has often been described as *hydropsy of the sinus;* at least, there is no observation showing that *free hydropsy* could attain, in the antrum, to such a development, and I consider as probable, that which M. Giraldès has been the first to note, that a mistake has usually been made as to the origin of these cysts. At the time that the polypus has become so largely developed, it is possible, on opening the sinus, to reach immediately the cavity of the polypus, without perceiving that the liquid was contained in a special envelope, exactly as when one cuts into the sac of an echinococcus the vesicle of the animal is at the same time incised."*

Examples of the so-called dropsy of the antrum are recorded by Fauchard,† L. H. Runge,§ Bordenave,‡ M. Sauvé,|| Jourdain, M. Deschamps fils,¶ Boyer, Dubois (in Boyer's 'Maladies Chirurgicales,' tom. v, p. 105 et seq.), Sir W. Fergusson ('Lancet,' June 29th, 1850), and Sir John Fife records the following case in the 'Lancet,' 1850, vol. ii, p. 343):

W. B—, æt. 12, a native of Heworth, was admitted on August 16th,

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* Virchow, 'Die krankhaften Geschwülste,' vol. i, p. 245.

† 'Le Chirurgien Dentiste,' Paris, 1728, tom. i, p. 438.

‡ 'Dissert. Med. Chirurg. de morbis præcipuis sinuum ossis frontis et maxillæ superioris, preside F. de Fiegler Kintelu,' 1750.

§ 'Mémoires de l'Académie Royale de Chirurgie,' tom. iv, p. 336, and tom. v, p. 227.

|| 'Bulletin de la Faculté de Médecine et de la Société etablie dans son sein,' tom. v, p. 9.

¶ 'Dissertation Inaugurale,' par M. Deschamps fils.

with great enlargement of the left cheek, from enormous dilatation of the antrum. The patient had measles three years ago, since which time the present tumour had gradually increased; its distension seems, from the feeling, to be caused by fluid.

Sir John Fife made an incision from the commissure of the mouth, horizontally backwards; another commencing at the same point, directly upwards. He then dissected back the flaps as far as the orbit, first tying the facial artery, then with Hey's saw he cut out a right angled triangle of bone, exposing the whole of the antrum, which contained two teeth and about four ounces of gelatinous, amber-coloured fluid, but no organic disease. The swelling is now considerably decreased, and the patient is doing well.

Mucous Cysts.—M. Giraldès, of Paris, seems to have first pointed out that the so-called *dropsy of the antrum* is often only the result of the formation of a large single cyst or multiple cyst, and that the seat of the disease was, in such instances, in the mucous glands of the lining membrane of this cavity. These glands lie in great numbers, especially along the inner wall of this sinus, and when, from any cause, the orifice of the glandular canal becomes obliterated, the secretion is retained, collects and forms a cyst. M. Giraldès divides these cysts into two kinds:—1. The miliary cysts, formed by the dilatation of the peripheral part of the excretory duct. 2. Cysts of a larger bulk, and formed by the dilatation of the whole follicle. The first kind are only of importance as being occasionally the starting point of the larger cysts. These latter, of which specimens are seen in St. Thomas' Hospital Museum, placed there by Mr. William Adams, even before the treatise of M. Giraldès called attention to their significance, are variable in number, sometimes single, sometimes multiple.

In another specimen the "lining membrane of the antrum at the base of the cyst is slightly thickened, but healthy in other parts, excepting that, at a little posterior to the above-described cyst, it appears to be split into two layers, which are separated from each other, the outer layer having a central perforation, presenting therefore somewhat the appearance of a cyst with a central aperture." ('Catalogue of St. Thomas's Hospital Museum,' p. 194; description of specimen I, 22.)

In the next specimen (I, 23 in the Catalogue), a somewhat similar condition of the posterior part of the lining membrane of the antrum is described; it "is seen to be split into two layers at two places, the layers being separated to the extent of one eighth of an inch, and connected by loose but abundant areolar tissue."

M. Giraldès, in his paper on this subject, describes two cases of cyst in the antrum illustrating the multiple form of cyst in an early stage of development.

Their size varies from that of a large pea to that of a pigeon's egg, and even larger. Their colour is not uniform: sometimes transparent, of a whitish yellow, sometimes opaque, yellowish at the centre, and transparent at their circumference. The matter contained in them is generally viscid, thick, stringy, transparent, and sometimes yellowish. In some instances it is a thick opaque mass, occupying the central region of the tumour. In the larger cysts the matter seems to have undergone a certain amount of alteration; it is more liquid, of a yellowish-white, sometimes but slightly transparent, of a syrupy consistence, and loaded with crystals of cholesterine. The matter from these cysts dries up rapidly when exposed to the air, and then assumes the appearance of gum arabic. Chemically, it contains much the same constituents as mucus, but with a little more albumen. Microscopically, it contains granules, altered blood globules, fat globules, débris of epithelium, but, above all, a large quantity of crystals of cholesterine.

Symptoms and Progress.—As the cysts increase in bulk they fill, and ultimately distend the cavity occupied by them, and thrust the walls of the antrum towards the cheek, the orbit, the nostrils, or the mouth, and sometimes in all these directions at the same time, causing thereby great facial deformity and displacement of the neighbouring organs. The walls become thin and fibrous in consistence, so that when pressure is made on the cheek a crackling sensation, as if from the yielding of parchment, is experienced. In all respects, therefore, the symptoms resemble those of so-called dropsy of the antrum.

Diagnosis of Cysts.—The same external distortion and enlargement of the jaw occurs in the advanced stages, as in distension of the walls of the antrum from any other cause, and in the early period these features will be altogether absent. An exploratory incision in the most prominent part of the swelling, through the mucous membrane, will not fail to clear up any doubt as to the presence or absence of fluid and as to its nature, but it may not quite satisfy us as to its position, unless care be taken to explore the cavity with a probe after letting off its fluid contents: for it is not very uncommon to meet with cystic growths in the mouth quite external to the walls of the antrum, and it would not be satisfactory to conclude, from the mere presence of fluid in such a cyst, that we were therefore dealing with an antral cyst. Sir James Paget described a case, occurring in a woman, of a soft elastic swelling, which pushed out the thin mucous membrane of the upper jaw, producing externally an appearance somewhat similar, at first sight, to distension of the antrum. An incision into the cyst allowed the escape of nearly an ounce of turbid brownish fluid, containing crystals of cholesterine. Sir James then found that "the cyst rested in a deep excavation on the surface of the alveolar border of the upper jaw; an adaptation of shape attained as the result of long-continued pressure of the cyst, which had existed six years."

Sub-endosteal Cysts.—It sometimes happens that a tooth-socket communicates with the antrum though separated from its mucous cavity by the periosteal and mucous linings. Under these circumstances the fluids of the mouth find their way into the sub-endosteal space, and gradually separate the lining of the cavity as they accumulate. This rare form of cyst is distinguished from the other varieties by the ascertained presence of a perforation in the tooth-socket, through which fluid of a *peculiarly pungent and fetid* odour escapes. The *diagnosis* of this kind of fluid accumulation may be very difficult in the early stage, the aperture into the antrum being sometimes extremely small and, perhaps, covered over by a crust of tartar. Even at a later period there may be little local tenderness or pain, and, in fact, nothing to point to the particular tooth-socket which is at fault. A careful inspection and repeated probings of suspicious points will alone lead the surgeon to the true source of the mischief.

Treatment.—A puncture should be made in the most prominent part of the cyst wall, and, after removal of the contained fluid, the aperture sufficiently enlarged to allow of the whole cystic growths being scraped away from their attachments. The opening must be made, if possible, within the mouth, in order to avoid a disfiguring scar on the cheek, and also because the cavity of the antrum can be better reached at this part, about half an inch above the second molar tooth, or at the most prominent part of the tumour near that point. If, however, there is a carious molar that requires removal, it should be extracted, and the antrum can then be perforated through the socket. In whichever way an opening is made, it should be sufficiently large to allow of the introduction of some instrument, such as a gouge, for the purpose of extracting the cystic contents. If the opening be made in the outer wall, a portion of the bone should be removed by means of cutting pliers.

The sinus being opened widely and emptied of its contents, it may be syringed out daily with some stimulating injection, such as iodine solution, or sulphate of zinc, and the aperture kept open by being stuffed with lint soaked in carbolized oil.

A still better method of making a large orifice in the wall of the antrum is that suggested by Dr. Weber, viz., to cut the bony wall in the form of a trap-door, leaving the upper part of the flap united by the periosteum, as a sort of hinge. This allows of a sufficient opening, and the vitality of the bone will be preserved, so that when it is thought desirable to close the orifice, the bone can be restored to its normal position and no permanent aperture will be left. If the walls of the sinus have become much attenuated before treatment is commenced, it is possible that a seton may be passed through the expanded and softened portions, and allowed to remain until suppuration has become established; but this method is open to the objection that we cannot judge of the exact nature of the cyst, unless we have a considerable opening, through which the probe or finger can be passed; and considering the very frequent occurrence of some irritating foreign body or loose tooth in connection with these enlargements of the antrum, considering also the fact that the cyst, if multiple or if formed of a tough membrane, should be removed in order to prevent its refilling, it is much better in all cases to make a larger opening than could be done by the use of the seton thread only. It is rarely necessary to make any incisions through the integuments, in order to reach the expanded walls of the antrum; and this is only justifiable when the cystic growth is partly solid. It is probable that in Sir John Fife's case the incisions were made through the integuments in the expectation of meeting with a solid growth, though it was afterwards found that the only contents of the antrum were "two teeth and about four ounces of gelatinous amber-coloured fluid." The case is instructive, as illustrating the desirability of making preliminary or exploratory incisions into the growth within the mouth before proceeding to make large incisions through the skin.

(*To be continued.*)

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 453.)

On the Eruption of Teeth underneath Artificial Teeth.

If we except the wisdom teeth, which are very uncertain as to the time of their eruption, the teeth that are more generally found absent where any of the permanent set are missing are the superior lateral incisors; but, as we have before observed, although they may not make their appearance at the usual period, we are not to infer that they do not exist. I have seen a good many mouths in which either one or both the lateral incisors have been absent, but I have not yet met with a specimen in which it could be clearly demonstrated that these teeth had never been developed, and it will be found that this abnormality as regards the cutting of teeth is not unusually exhibited in many members of the same family.

J. J—, a lady, æt. 18, having in other respects a regular and thoroughly erupted set of teeth, called upon me for the purpose of having constructed a plate with two upper lateral incisors. The teeth were all (excepting the third molars) well developed, and in no way crowded. Spaces thoroughly sufficient to admit of the advance of the missing laterals existed in the jaw, nor was there any evidence that their eruption had been delayed from any illness in the patient or disease in the first set. The impression conveyed by the appearance of the mouth was that the teeth had been extracted, but this I was assured was not the case. A piece of work was constructed, and for two years remained undisturbed. At the end of this period an uneasiness was felt immediately underneath the substituted teeth, followed by the patient discovering that she could not keep the work in its place, and eventually the points of the two missing laterals presented themselves. They became gradually erupted to their full length, nor was there any evidence of their being imperfectly developed, and they are now, after a lapse of nearly ten years, apparently free from disease. It is difficult in a case like this to account for the retarded eruption of particular teeth; for it does not appear that there was any delay in the cutting of the other teeth of the permanent set if we except the wisdom tooth to which we shall presently refer.

We may also have a want of development generally;

showing itself in the retarded growth of all the teeth, and in these cases the lateral incisors are not unusually the last to make their appearance.

L. A—, a very diminutive child at the age of fifteen, had only erupted the anterior molars, the central incisors, and the anterior bicuspids of the upper jaw. Two years later the canines made their appearance, followed by the posterior bicuspids which had to be sacrificed owing to the crowded state of the mouth and from the awkward position they had taken inside the circle. At the age of nineteen, as the lateral incisors were still absent, a plate was made, the deficiency being very conspicuous, and at the age of twenty-one one of the laterals began to make its appearance. At the present time, two years later, this lady continues to wear the plate, but one of the artificial teeth has been cut away and the coming tooth has advanced to about one third its length, but so far we have no sign of the companion tooth. The patient is perfectly healthy but much under the usual height, and all her bones are exceedingly small. The posterior molars are now being erupted at the age of twenty-three, but we have yet no appearance of wisdom teeth either in the one jaw or the other. I may observe that the fourteen lower teeth came in the usual order, although their eruption was delayed nearly two years. We have every reason to believe that the other incisor will make its appearance, although I have my doubts whether the wisdom teeth have ever been developed.

Passing these two cases of delayed dentition, I come to the notes of one that presents some very unusual features.

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A gentleman called upon me suffering very much from the cutting of a lateral incisor. He was about twenty-five years of age, and all the twenty-eight permanent teeth had made their appearance excepting this one. The space was somewhat contracted owing to the encroachment of the neighbouring teeth, and the lateral had presented itself sideways. I advised him to retain the tooth as the mouth was not at all crowded, and I felt fully convinced we should be able to make room for this last arrival without interfering with the regularity of the circle. The tooth was to all appearance [a very good one, and had advanced to about two thirds of its length. What made the case peculiar was the acute pain he suffered when he touched the part nearest the gum on the labial side. I examined the tooth with a powerful magnifying glass very minutely. There was no inflammation, but upon pushing back the edge of the gum and touching the tooth where the enamel slopes towards the neck he started with pain, and declared that he was sure that there was an exposure of nerve. I conceived that it was only a little inflammation in the periosteum, and touched the surface with nitrate of silver. Still the sensibility continued, and, what made it more distressing, the patient had got into the habit of drawing the air through the teeth and pressing the part affected with his tongue. Eventually, after enduring great inconvenience for many months, he determined to lose the offender, although I must acknowledge it was greatly against my wishes. The tooth was, however, extracted, and upon examination seemed to all appearance perfectly healthy, nor was there any indications of inflammation in the investing membrane or, indeed, any disease of the fang whatever, but upon making a minute inspection with a magnifying glass at the termination of the enamel on the labial side a slight depression was perceptible, and in this depression we discovered an exceedingly minute channel leading into the pulp chamber. I was able to pass a fine bristle through its whole length, and to demonstrate that the nerve had traversed this passage to the front. It was easy enough to prove, the tooth being extracted, how readily it might have been saved, but the gentleman was so thoroughly persuaded that it would always have been a source of annoyance to him that he did not regret its loss. As the case appeared to me to possess considerable interest I requested to be permitted to keep the tooth; this my patient promised to allow me to do but desired to have the loan of it for a few days; but when he returned it to me I found that he had so enlarged the channel that it no longer possessed any interest as a museum specimen. I, however, made it into a section which convinced me that these appearances could only be the result of imperfect development, for although the pulp cavity was unusually large there was no disease in the tooth, nor was there any deposit of secondary dentine which we might under the circumstances expect to find, considering the patient had been suffering for so long a period. I am under the impression that I have somewhere read of a similar case of a nerve exposed naturally, but certainly in my own experience and in the experience of those with whom I have been able to consult the case is unique. The opening was not the result of disease, for the tooth was good in colour and the neck of the tooth, where the depression existed, was perfectly free from caries. The channel leading into the pulp chamber was a clean—although exceedingly minute—passage, and through its length the nerve traversed to the centre cavity of the tooth.

(*To be continued.*)

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

(*Continued from p.* 456.)

Every vulcanite piece should have a metallic strengthener, unless we except small pieces of two or three teeth in juxtaposition on one side of the mouth, which are sometimes required to supply a deficiency of natural masticators.

Platina or gold answers almost equally well for this purpose; but as, for reasons to be presently mentioned, it is best to have the metal exposed on the lingual surface of the plate, and gold looks best, at any rate in the eyes of the patient, and the conveniences for using it are always at hand in the workroom, this will probably be the chosen material.

In putting metallic strengtheners into vulcanite plates it must be borne in mind that there is very little adhesion between the two materials; so that when two layers of the latter have a layer of metal between them, they are divided and their strength impaired as far as breaking strain is concerned. To give the greatest strength to the piece, therefore, with the least substance, all the metal which is to give strength to the piece should be on one surface, with only so much metal entering the rubber as will firmly attach the two materials together.

It should be a rule, with few exceptions, that the whole of the surface of the piece fitting the mouth should be of one material. If gold be used for the fit the piece will rank as a gold plate having the teeth mounted on rubber; if the fit is in vulcanite, the gold should be on the lingual surface.

Lower pieces carrying the masticating teeth with a bar passing behind the incisors are sometimes made with this bar entirely of swaged gold which passes into the vulcanite at the sides. When this is done two stout gold wire fastenings must pass from each end of the gold plate into the vulcanite, so as to give a firm attachment between the two, as shown in fig. 16 *bb*, only that the wire must be stouter than there figured. Pin wire for tube teeth is about the size.

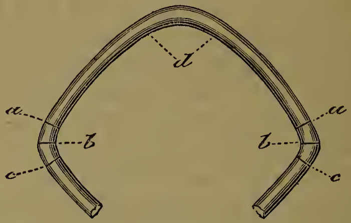
In packing the rubber the flask must not be opened and closed so as to press it in the ordinary method, as this would probably disturb the gold from its position, raise it by a little of the rubber creeping under or the pressure of the inclosed vulcanite may prevent the gold being brought perfectly close to the model.

The plaster cast, with the wax model and teeth upon it, is to be set in the lower part of the flask, in plaster, which is to be brought up at the sides so as to cover and hold the teeth, leaving uncovered only the lingual surface of the wax. When set the plaster must be trimmed so that the upper part of the flask will easily separate from it; this is now put on and filled up with plaster. When set the flask is to be opened and all the wax removed by boiling water; the rubber can now be packed and the flask pressed together without moving the gold from its position. Special flasks for packing in this way are sold, but I have not found them very advantageous.

Pieces should, however, seldom be made having the surface which is to fit in two parts separately adapted, as the difficulties of giving both an equal bearing greatly overbalance any real good to be obtained. Such pieces please the eye of workman and patient, as they are capable of showing more value in work and finish, but the only real advantage which they can lay any claim to is that less space is occupied under the tip of the tongue. If there is very little depth of hard gum between the necks of the lower teeth and the loose movable mucous membrane covering the frænum, so that the bar here has to be unusually narrow, or when a patient has an intolerable aversion to any thickness at this part, a piece made as above described may be indicated.

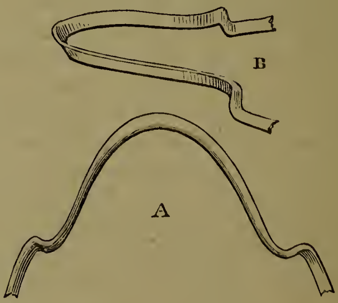
In most lower pieces a wire may be used, bent so that the upper surface shall show on the lingual surface of the piece opposite the necks of the patients' teeth, dipping into the vulcanite on each side for its own attachment at the point between the second bicuspid and the first molar, or any place which the construction of the piece makes most convenient. A stout half round gold wire, No. 24, Stubb's plate gauge, is very useful, taking little room and being sufficiently strong. It is bent in the following manner: if the front teeth in the mouth are vertical in position the middle of the wire which lies opposite to them only requires to be bent in a suitable curve with its plane side towards them; but if, as is usual, the teeth slope more or less forward the wire cannot be bent in this manner, or its longest diameter would have a proportionate inclination towards them which would either cut the vulcanite in two or necessitate a clumsy thickness to the plate; therefore, before bending it on its short diameter, *or flat,* the wire must be first bent on its long diameter, *or edge,* the curve being little or much in proportion to the slope of the patient's teeth (see Fig. 22 *d*). The wire can readily be bent if grasped by a pair of pliers having two transverse notches exactly opposite each other filed across the face of each blade. The two ends of the wire which are to enter into the vulcanite will require each three bends at right angles, and as one of these bends is on the edge of the wire it will be best to do it at the same time that the middle part of the wire is bent on the edge (see Fig. 22 *b*).

FIG. 22.



In order to finish the bending of the ends each must now have two more bends on the flat at right angles, one at *a*, Fig. 22, having the flat on the inside of the bend, and one at *c*, having it on the outside. The middle of the wire is now bent on the flat, the flat side being on the outside of the bend, so as to suit the curve of the teeth on the model, when it will be found that the inner surface of the wire can readily be kept parallel to their inclination. Fig. 23 A, B gives two positions of the wire as bent when finished.

FIG. 23.



Vulcanite upper pieces, from the masticating strain, generally break between two of the front eight teeth, therefore we shall have a sufficiently large strengthener if we carry it back on each side so that the ends terminate opposite the first molars. A swaged plate should be used, the anterior edge of which should terminate where the vulcanite begins to thicken as it rises to support the teeth. In this thickened part the attachment-pins of the gold should lie. The depth of the plate should be proportioned to the strain which the habits of the patient lead us to anticipate, but as no delicacy of fit is required a narrow stout plate is preferable to a deep thin one. If the palate is tolerably flat the plate may be swaged upon dies cast from the original model, but if the palate is a deep one it must first be covered on the model with a layer of wax of equal thickness with the rubber which is about to be used before dies are made from it; as the discrepancies between the upper and the under surfaces of a layer of even thickness placed on a model are greatly increased in proportion to the depth of the curves passed over. Fine wire staples, having their ends a little flattened for convenience, should be soldered along the anterior edge of the plate, so as to pass into the thick mass of rubber lying underneath the teeth (see Fig. 24 *b, b*).

FIG. 24.

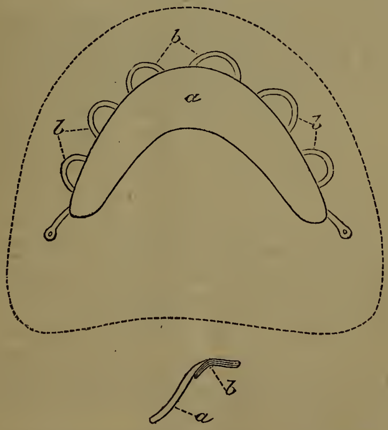


FIG. 24.—*a*, Gold strengthener, No. 8 or 9 thickness; *b, b, b,* wire staples soldered on the lower side of plate as shown in section below. The dotted line represents the external margin of the piece.

(*To be continued.*)

ON THE TREATMENT OF IRREGULARITIES OF PERMANENT TEETH.

By E. BALDING, Esq.

IN the course of my practice, treating cases of irregularity in the upper central and lateral teeth when they fall behind the lower ones, I have tried various plans—in some cases by capping the lower ones with vulcanite, from the upper surface of which a strip of gold plate, when the mouth closed passed behind the tooth to be put right; but usually I have adopted the plan illustrated by (Fig. 53, p. 133, Tomes's 'Dental Surgery,' 2nd edition) of capping the upper molars and bicuspids with a vulcanite plate, introducing the compressed wood pegs behind the teeth whose position it was desired to alter. I have in other cases, instead of the compressed wood, used with better results large-headed swivel pins; but each of these methods seemed to me more or less defective. The success of the first depending too much on the voluntary efforts of the patient.

In the second, the compressed wood required removing every day or every other day.

In the third, the pins needed frequent readjusting as the teeth were moved forward to keep up the necessary pressure. All this in my judgment occupying too much valuable time, and entailing an unnecessary number of visits upon the patient.

In thinking over the subject it occurred to me if the principle of the inclined plane could be introduced into the *upper* instead of the lower plate, it would accomplish the object desired in less time and much more easily.

Accordingly, the next case that came under my care I made a vulcanite plate, but instead of the compressed wood I inserted a strip of No 5 gold plate the width and at the back of the tooth to be operated on, leaving it sufficiently long, inclining it outwards that when the mouth closed it passed just over the lower teeth, the vulcanite plate being retained in position by small clasps round the temporary ones. By this method I was enabled to accomplish in seven days from time of insertion, and with three visits, what has often occupied a month, or in some cases longer, with visits from the patient every other day.

I have adopted this mode of treatment in several cases since, and in each instance with equally good results.

By the old plan the pressure is exercised spasmodically, as the tooth can only be moved a certain distance at a time, and after being moved must remain in its newly acquired position till the next visit from the patient; but by this the strip of gold plate, acting as a spring, keeps up a gradual and continuous pressure till the tooth is brought to its proper line.

It appears to me especially serviceable to the provincial practitioner, whose patients reside at a long distance from him.

Chemical Department.

FURTHER EXPERIMENTS ON THE ANTISEPTIC ACTION OF SALICYLIC ACID.

By J. C. Hunter, A.P.S.

(From the 'Pharmaceutical Journal and Transactions.')

Since the discovery of the antiseptic qualities of salicylic acid by Professor Kolbe, and his publications concerning it, the attention of many other scientific men, both at home and abroad, has been turned towards it for the purpose of verifying the results of Kolbe and Von Meyer, and also of assigning to it its proper place among other known and well-tried antiseptics, such as carbolic acid, creosote, chromic acid, &c., &c.

Salicylic acid being only soluble to the extent of one part to the 1000 parts of water, many formulæ have been published from time to time as good solvents for it, but I think that a solution of ammonium citrate is about the best.

The formula used by me was as follows, which is a modification of one that appeared in the 'Pharmaceutical Journal' about two months ago.

Citric Acid	60 grs.
Ammonia Carb	70 ,,
Water	6 ozs.

Dissolve the acid in the six ounces of water and neutralize with the ammonia, and when neutral add salicylic acid 60 grains, stirring, until it has all dissolved, and then filter. On testing the solution after the acid has dissolved, it is found to be quite acid.

From a gentleman in the wine trade, I obtained about one gallon of ginger cordial, which was newly made but did not contain any alcohol to preserve it, as I wished to try the effects of salicylic acid upon it as a preventive of fermentation.

The cordial was divided into four parts—

To part 1 was added no salicylic acid.
,, 2 ,, 10 grs. of salicylic acid to the pint.
,, 3 ,, 15 ,, ,,
,, 4 ,, 20 ,, ,,

All the bottles were loosely corked and put into a place where they would get plenty of air and light. They were examined day by day. That part containing no acid began to give way on the fifth day, a mucus forming on the surface, and shortly after carbonic acid was evolved, showing that fermentation had set in. In about eight days the part containing 20 grains to the pint gave way, whilst the other two containing 10 grains and 15 grains respectively of acid to the pint gave way three days later.

I was astonished to find that the part containing the most acid was the first to give way, and the only reason that I could assign for this was, that it contained more of the ginger than the others, and that the acid was not powerful enough to overcome the decomposition of the vegetable matter.

The results from these experiments did not prove that salicylic acid was a preventive of fermentation in sugar solutions containing ginger or other vegetable matter.

In the experiments of Kolbe and Von Meyer they employed simply sugar solutions, to which they added yeast as a ferment, and from their results they inferred that so many grains of yeast could be rendered powerless to cause fermentation by a certain quantity of salicylic acid. But according to my experiments salicylic acid does not prevent fermentation in sugar solutions if they contain much vegetable matter.

Mr. Baden Benger, in his paper read before the Conference last year, mentioned the preservative action of salicylic acid on lime juice; consequently I determined to try its effect in the making up of the syrup of lemon, B.P., which is very ready to give way, a nasty white-green mucus forming on its surface.

Five grains of salicylic acid were added to the pint of lime juice used in making the syrup, and although it is now two months since the syrup was made up there is not the slightest appearance of any mucus on its surface.

The experiments of Professor Neubauer on the power of the acid to prevent grape juice from fermenting, and also for the prevention of further fermentation in wines that have fermented, prove that we possess a valuable agent in salicylic acid.

At the suggestion of Mr. Fairlie, and through his kindness in furnishing me with a supply of grape juice for the purpose of experimenting upon it with salicylic acid, I attempted to verify Neubauer's experiments. One portion with 10 grs. of salicylic acid was exposed last Jaunary as a preliminary test, and up to the present time no mucus has formed on its surface; nor has any fermentation set up, for on distilling a portion of it chemical tests failed to detect any alcohol present in the distillate.

The second supply was obtained about two months ago; it was divided into four parts—

To No. 1 was added 10 grains salicylic acid alone to the pint.

To No. 2 was added 15 grains.

To No. 3 was added 20 grains.

These three parts contained the salicylic acid dissolved by means of the ammonium citrate solution.

To No. 4 was added 20 grains salicylic acid to the pint.

These four quantities were all exposed under the same conditions in uncorked bottles, and have been examined from time to time. It is now two months since they were first exposed, and the grape juice contained in them is as sweet and fresh as if it was newly expressed from the grape.

These experiments confirm the statements of Professor Neubauer, that the acid is well adapted for the preservation of grape juice, as it is odourless, tasteless, and non-poisonous.

Mr. Baden Benger gave the results of his experiments last year, of its action on the infusions of the Pharmacopœia, and having tried its effects in that direction also, I find that it has a decided effect in preventing them from giving way.

Two quantities of infusion of orange and two of infusion of quassia were made by me, these infusions being selected, as they give way readily.

The two infusions of quassia and orange that contained no acid gave way first, the infusion of orange in three days, and the quassia in five days; but of the two infusions that contained the acid in the proportion 10 grains of acid to the pint of the infusion of orange, and 5 grains of acid to the pint of the infusion of quassia, the infusion of orange is still fresh after sixteen days' exposure, whilst the infusion of quassia gave in six days a yellow flocculent deposit.

The last series of experiments undertaken by me had for its object to determine the antiseptic action of the acid on infusions of hay and turnips used in the generation of infusorial animalcules.

I prepared four infusions of turnip.

Infusion No. 1 contained no acid.
" " 2 1 part salicylic acid in 1000 water.
" " 3 1 part creosote in 1000 water.
" " 4 1 part of salicylic acid dissolved in 2 ammonium citrate in 1000 water.

The infusions were examined day by day with the microscope. On the third day the turnip infusion, which contained no salicylic acid, gave signs of animalcules, but the other three were still free from any. On the eighth day infusion No. 3, containing the creosote, and also infusion No. 4, containing the salicylic acid in the ammonium citrate solution, commenced to decay, a green mucus forming on the surface of both, and on examination under the microscope, quarter-inch objective being used, animalcules were seen to be present in both; but infusion No. 2, which contained one part of the salicylic acid alone in 1000 parts of water, on being examined after a lapse of fourteen days, gave no signs of animalcules being present, and it still was quite fresh to the eyes and nose, while the other three had the mucus formed on their surface, and they all had a putrescent smell.

Three infusions of hay were prepared.

Infusion No. 1 contained no acid.
,, ,, 2 ,, 1 part salicylic acid to 1000 parts water.
,, ,, 3 ,, 1 part carbolic acid to the 1000 parts of water.

These three were also examined microscopically every day, and after a lapse of thirty-six hours there appeared in the infusion of hay, which contained neither salicylic nor carbolic acid, plenty of infusorial animalcules; paramecii and other smaller animalcules were in abundance; and four days later, in the same solution, rotifers, or the wheel animalcules, began to appear. After four days had elapsed infusion No. 2, containing the salicylic acid, was examined, but there was no appearance of any life. So also in infusion No. 3 containing the carbolic acid there was no appearance of life.

On the ninth day animalcules began to appear in the infusion containing the carbolic acid; these on being examined a few days later showed signs of increase in the fluid, showing that the carbolic acid had lost its power of further preventing them from multiplying; but infusion No. 2, containing the salicylic acid, had up to the thirteenth day no appearance of any animalcule, but on the fourteenth day I was able to detect a stray small animalcule now and again. In the fluid, however, there were very few when compared with the solution containing the carbolic acid, which was also examined on the fourteenth day, and was found to contain a far greater quantity, but not so many as were to be found in the infusion that had neither salicylic nor carbolic acid.

All the infusions that had generated animalcules were alkaline to test paper, proving the well-known fact that we find animalcules present only in alkaline solutions or in vegetable infusions which are alkaline, for in the infusion of turnip which contained the pure salicylic acid, and was still quite acid to test paper, no animalcules had been generated.

Summing up the foregoing results, salicylic acid does not appear to prevent fermentation in sugar solutions containing vegetable matter.

It prevents the decomposition of lime juice, and it is also of great use in preventing the decay of syrup of lemon.

It prevents in a very marked manner the fermentation of grape juice for an indefinite period.

And, lastly, it prevents the disintegration of vegetable tissue, hence it will be found useful in preventing vegetable tissue, used for microscopic mounting, from decaying.

In conclusion, I would venture to give my opinion, "that the adaptability of salicylic acid for preserving the infusions of the Pharmacopœa is not so great as that of alcohol, when we take into consideration the many substances used conjointly that would destroy or neutralize its antiseptic action."

Mr. Siebold mentioned last year his objection to it when prescribed with salts of iron, as it would give a purple solution. Again, many medical men prescribe infusions combined with alkalies, such as bicarbonate of potass, bicarbonate of soda, liquor potassæ, &c. Consequently salicylic acid would combine with these and form salts which have a very feeble antiseptic action. Hence the infusions so preserved would in all probability begin to ferment as soon as that change took place, and the patient would find the mixture which he had obtained from his chemist becoming sour and a mucus forming on its surface before it was all taken.

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From August 1st to August 31st, 1876.

Extractions	Children under 14	472
	Adults	581
Under Nitrous Oxide		193
Gold Stoppings		109
White Foil ditto		42
Plastic ditto		186
Irregularities of the Teeth treated mechanically		7
Miscellaneous Cases		168
Advice Cases		145
Total		1903

James Merson,
Dental House-Surgeon.

British Journal of Dental Science.

LONDON, OCTOBER, 1876.

The Medical Session of 1876—1877 has commenced, and it is our duty as well as our pleasure to give in these pages a hearty welcome to those gentlemen who have entered upon the study of the specialty we are proud to represent.

We endeavoured in our last issue to supply such information as would aid them in their pursuit of knowledge, and we would now venture to give them a word of warning against those who, jealous of the high position which the Dental students of the present day must attain in the future, would seek by their puerile and aimless murmurs to render them dissatisfied with their condition. We would earnestly advise the young student to pay no attention to such cavillers, and wholly to disregard, whilst pursuing his studies, all such questions as may be designated by the term 'Dental politics.' Let him not concern himself with the consideration of what measures or what societies are likely to advance the interests or position of the specialty he has adopted, but let him remember that he will in future years be best able to assist in upholding it, if he first seeks to make himself a worthy member of his profession by diligent cultivation of the many opportunities and advantages now offered to him. Having elected to be a Dental Surgeon, let him unswervingly fix his aim on the possession of the only British Diploma which so qualifies him, that is the Diploma in Dental Surgery of the Royal College of Surgeons of England, remembering that with the course of study now required from those who seek for this diploma the additional title of Member or Fellow of the College is no more an indication of greater knowledge of Dental Surgery than the title of F.R.S., and is, indeed, of no value to the Dental Surgeon, except in so far as every additional indication of educational acquirement tends to the improvement of a professional man's status. As such we would urge every Dental student to strive to attain these honours for honour's sake; but if from any reason he has to content himself with possessing the diploma, which alone indicates that he is thoroughly educated in the profession he has adopted, let him not be discouraged because he is told that a few foolish individuals have associated together to the exclusion of men like himself, who have received a better education in the specialty the exclusives profess to discuss, than they, with a few exceptions, ever had the opportunity of obtaining.

Literary Notices and Selections.

ON HEREDITARY SYPHILIS AND THE CONTAGIOUS DISEASES ACT.*

By George Barraclough, M.A. Cantab., M.R.C.S.

(Reprinted from the 'Medical Times and Gazette.')

Whereas the characters of acquired syphilis are carefully studied and widely known, it can hardly be affirmed that this holds good of hereditary syphilis, at least with the larger portion of the profession. It is this consideration which has urged me to put on paper the observations and suggestions which follow, with a view to excite more interest in the subject, even though the common fund of knowledge may not be much increased thereby. Certainly, a rather extensive acquaintance with general practitioners has led me to observe a remarkable absence of information on the subject, and not seldom a considerable lack of interest in it.

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* Although this article from its title would scarcely seem suitable to our pages, it contains so much of interest to the Dental Surgeon that we have gladly availed ourselves of the author's permission to reprint it with the use of his engravings.

In the present state of our knowledge, such questions as the following, although relating to matters of the highest practical importance, are not easily answered :—

What phenomena should we expect to find in the offspring of infected progenitors, in the second and third generations, and so on in the descending scale?

Is a man hereditarily infected capable of tainting the blood of his wife?

Are persons tainted with inherited syphilis more, or less, obnoxious to direct infection than untainted persons, or have they a quite equal susceptibility?

If an inherited taint neither prevents nor mitigates infection, is it not reasonable to presume that the hereditary cachexia would render the subjects of it liable to greater havoc from acquired syphilis?

Is any syphilitic influence communicable to an infant through the agency of vaccine lymph taken from an hereditarily tainted person?

Is hereditary syphilis a source of sterility and barrenness?

The few observations I have to record may not throw much light on the above questions, but the suggestions thrown out, if acted on by those who possess the necessary opportunities, may go far to achieve the end desired.

There are symptoms of hereditary syphilis which are only too familiar to all of us. The subjects of them present, at or soon after birth, skin eruption, snuffles, ophthalmia, maculæ, and many other disorders. These symptoms are obvious enough, and the infants afflicted with them appear, so far as I have been able to ascertain, to be conceived when their parent or parents are suffering from secondaries. But then, on the other hand, we meet with a class of cases in which the phenomena are very different indeed. There are, in these cases, no symptoms nor appearances at birth by which, in the present state of our knowledge, we can discern a syphilitic taint. The indications of this manifest themselves at a later period. I have generally ascertained that children of this class are conceived when the active symptoms of disease have been subdued in their parents by treatment, or by lapse of time, a syphilitic taint remaining in the blood of these latter.

Everyone can recall some case indicative of the length of time syphilis may lurk in the blood. I remember a case in my own practice which is worthy of mention. An artisan, sixty years of age, called upon me, and exhibited a very large ulcer on the inner side of the upper arm. There was something so evidently syphilitic about this sore that I immediately inquired of the patient whether he had ever been infected with syphilis. "Yes," he replied, "I had the disease more than thirty years ago, before I was married. But during the thirty years of my married life I have known no woman but my own wife." He professed to have enjoyed average health till the last four years, during which period he had become feeble and incapable of working with regularity at his occupation. He had also experienced, during this time, wasting of the testicles and loss of sexual power. Here, after the lapse of thirty years, the poison was re-asserting itself.

Being recently in attendance on a little boy suffering from croup, my attention was arrested by the character of the child's teeth: they are depicted in drawing No. 3.* The appearances they presented led me to examine the teeth of the other children of the family. No. 2 represents the teeth of the eldest girl, aged ten years. These teeth were in nowise discoloured nor carious, and the reader will see the circular notching tending to become angular. No. 4 presents the teeth of a little girl, aged seven years. Here the serration of two of the teeth is chiefly angular and cut down on the front surface. The upper incisor inclines to the circular form of notch. There was an infant, one year and seven months old, whose milk teeth were quite white, and neither notched nor discoloured. The incisors of the boy (No. 3), who was eight years and a half old, were discoloured a deep yellow below the irregular line indicated nearly in the centre; above this line they were white. There was no caries, but one of the canines was enormously large. These peculiarities about the teeth led me to suspect a syphilitic taint. Accordingly, the mother, a delicate woman, much younger, possibly, than she looked, at my request allowed me to make an examination of her mouth. Such of her teeth as were notched are depicted in drawing No. 1. The upper incisors were of enormous magnitude, and possessed that angular

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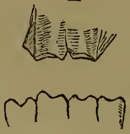
* These drawings, though made to no particular scale, are strictly accurate, and to be relied upon so far as the form of the teeth is concerned. I have only slightly diagrammatised them by flattening out the jaw so as to present the teeth in the same vertical plane. In No. 4 the teeth are represented independently of their local relations. I attach so much importance to affections of the teeth in enabling us to ascertain the existence of hereditary taint, because of all syphilitic lesions they are the most constant. Neither affections of the eye, nor flattening of the nose, nor markings about the angles of the mouth, nor even affections of the bones, are so constant as are those of the teeth. That this constancy should exist, and the affection be so well marked, need not excite surprise when we consider that the teeth stand, as it were, structurally, half way between the endo- and exo-skeletons. And standing, as they do, at the very portal of the alimentary canal, and having for their function the act of mastication, which plays such an early and important part in the digestive process, it is readily seen how any serious injury to them must impair digestion, and ultimately the nutrition of the whole body. The condition of the teeth, then, affords us important aid in determining the question whether the effects of the primary virus are mitigated by the existence of hereditary taint. However, up to the present time, my own experience on this point is ambiguous. Whether the gapping to be seen in some of my drawings has any essential connection with syphilis is hard to say; I have seen it so often that I am almost constrained to regard it as something more than a coincidence. Amongst other cases of the kind, I have a drawing in my desk from the teeth of a brother and sister, exhibiting in both instances the characteristic notching and also this peculiar gapping; the boy is blind from syphilitic keratitis. Whilst writing this, I have under my observation a family of three children whose teeth exhibit nearly all the traits of hereditary taint. One, a boy, has this gap between the central upper incisors, so large as almost to admit the passage of a goose-quill, the incisors which flank this opening being disproportionately large. If this increased magnitude, which resembles the hypertrophy, or rather morbid increase, of the long bones is due to the disease, it is not a little remarkable that the opposite condition, viz. diminution of size, which often exists, should also be due to it, as really appears to be the case. Having little doubt as to the syphilitic origin of the black lining mentioned in the course of this essay, I attach much importance to it, because this line—which may well be designated the sepia line (as though drawn with this fluid)—with the exception of yellowish discoloration, is not unfrequently the only sign of inherited taint as regards the teeth.

1



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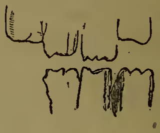

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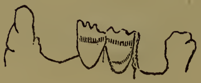

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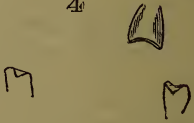

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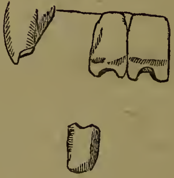


This is sometimes manifested in comparing the teeth of children born of tainted parents, some of them having the notching well marked, and one or two, perhaps, showing only this line and some discoloration.

slope laterally which is seen in the sketch. The notching was of that semicircular form which, I believe, is now universally deemed indicative of a syphilitic origin. This woman's teeth were excessively irregular, and in size most disproportionate to each other. I had no opportunity of scrutinising the father. The little girl (No. 4) presented a very remarkable hypertrophy, or prominence, of the tuberosities of the carpal ends of the ulnæ. This prominence was nearly three times greater than is usually the case, and was, I presume, morbid. There was no corresponding development of the tuberosities of the tibia about the ankles. Quite the reverse of any superfluous vitality was manifested by these children as a family; and about this little girl there was the same oldness of demeanour, the same listlessness and languor, that I had often before known to characterise children having their teeth even more slightly serrated than this one. These teeth are sometimes only serrated, having nothing else noticeable about them; sometimes, in addition, they have that peculiar horizontal line separating a white portion of tooth from another portion discoloured merely, or carious, or honeycombed. There is always an oldness and sedateness about these children, and frequently a characteristic languor. They laugh, but their laughter is like that of grown-up people; it is not the free, happy laughter of childhood. They play as if they were playing at play like old people who play with their grandchildren. This state may well be designated the cachexia of hereditary syphilis.

Drawing No. 5 was made under the following circumstances. A patient I happened to be attending for heart disease was nursed by his wife and her sister. There was about this latter all the languor which I have noticed above. She manifested a frequent tendency to lounge against a bedpost, a mantelshelf, or to seek the repose of a chair. There was nothing remarkable about her skin beyond a general sickly hue pervading it; but I observed she was becoming bald—a noteworthy circumstance in a woman only forty years of age. These phenomena led me to surmise a syphilitic taint. I examined her teeth: they were large, but not abnormally so; quite regular, and neither notched nor discoloured. "Are you married?" I inquired. "I have been married, but my husband is dead." "Have you any children?" "Yes, four." "Are they healthy?" "Yes, I believe so." "Then they do not complain of ill-health?" "They do not complain of being ill, but they all complain of their hair falling off." This was ominous, so I requested to see her sister. On that lady making her appearance, I carefully examined her mouth, and found that well-marked notching of the teeth which I have delineated in No. 5. How very much these teeth resemble those in No. 1! The notching is even more perfect; and there is the same tendency to abnormal size. There was also that same horizontal line dividing the surface of the incisors, as is seen in No. 3. This woman's hair was dark, abundant, and showing no inclination to baldness. Her skin was coarse in texture, and of a dull whitey-brown hue. She was fifty years of age, and married, but never had any children. Her sister (the widow) made no complaint of ill health, but affirmed that she was very easily fatigued. As a rule, people of this kind make little account of their own deficient energy. They only heed some departure from their general standard, and that is a very low one, as their languid demeanour proves. I had no opportunity of examining the widow's children, as they resided at a distance —a circumstance I much regretted.

I may note, in passing, that persons tainted with hereditary syphilis sometimes possess one or more teeth of such magnitude as rather to resemble the tusks of a lower animal than the teeth of a human being. Idiots often show a somewhat similar tooth. Does syphilis ever develope idiocy? If drink does this, as some authorities aver, why should not another poison—viz., syphilis—do the same? There is another kind of syphilitic tooth which is possibly well known to many. The tooth may appear healthy with the exception of one or more circular holes—dental ulcers, in fact—having a dark base, and looking as though a portion of the enamel had been removed by a punch. When this quasi-ulcerative action is situated at the lower margin of the tooth, it of course assumes the simicircular form. I remember a little girl, three or four years of age, on whose teeth a single spot of this kind was the only vestige imprinted by syphilis. There was a history of secondary skin eruption soon after birth—which had disappeared when I saw the child—and the mother informed me that she herself was infected by the father some time after conception. Of course she made no aallownce for the incubatory stage of the disease.

That depressed form of vitality which I have endeavoured to describe above is one of the gravest facts we have to deal with in considering the spread of syphilis. It demands the serious attention of the statesman quite as much as it does that of the physician. If foreign nations devise stringent measures for checking the ravages of syphilis, and we neglect such measures, not all our iron-clads, not all our big guns, will enable us to cope with those nations, when our soldiers and sailors and the civilian classes from which they are drawn have become universally affected with that depressed type of physique which I have indicated. And this type is becoming rapidly developed, thanks to the railway system which spreads the primary disease all over the land.

One thing is certain—there is no time to lose. Whilst we are discussing on platforms and writing in newspapers the mischief is being done. It is true, syphilis has been endemic amongst us for more than three hundred years. Then why, some one may ask, is it more incumbent on us, as a nation, to act now than in times past? Is it necessary to point how different the conditions are at the present hour from what they were two centuries, or even fifty years, ago? Then there were fewer canals, no railways, no steamships, and the disease was, for the most part, confined to seaports, military stations, and a few large towns. Now, military stations, camps, and route-marchings have spread all over the land; and railways, in addition to their annual slaughters, convey the disease into remote hamlets where hitherto the malady was unknown. The experienced eye can literally trace the line of march between one military station and another by the syphilitic character of the inhabitants dwelling along it.

Less than two years ago I happened to be residing, for a short time, in a provincial town situated between Aldershot and several other military posts, and could not help being struck with the syphilitic character of the inhabitants. Amongst other indications, I observed that nearly two thirds of the people I came in contact with possessed rotten teeth of the syphilitic type. Here it was that a woman brought me for treatment her infant, about four months old. It required very little examination to discern in it the evidences of acute syphilis. And it is not a little important in the interests of vaccination, that this woman affirmed that, so far as she could see, the child was quite healthy up to three months of age. This affirmation was probably due to her want of discernment; but I just mention it. Notwithstanding careful treatment the child rapidly sank and died. I inquired of the mother whether she had ever, to her knowledge, been infected. "Yes, sir," she replied, "I was seduced by a soldier in London, and he gave me the disease. He wanted me to take lodgings and receive him, but I refused, and went into the Magdalen. Then I came down here and married my present husband, a farm servant, a few miles out. The soldier was a sergeant in his regiment, and ought to have known better. Those soldiers," she continued, "would get the better of any poor girl. The very last time that they were billeted here they seduced two poor girls, both under seventeen, and left them both in the family-way, and eaten up with the disease." "What became of them?" I inquired. "They went on the parish, sir." I wonder how the parish authorities relished this needless burden on their rates! When the mother came for the certificate of her infant's death, I inquired whether she had informed her husband as to the nature of the child's complaint. "Yes," she replied, "I informed him of the nature of the complaint, and told him how you said he had taken it from me." "What did he say then?" "Why, he said, 'Well, my girl, then we are both alike, for I had the same disease before we were married.'" I was somewhat puzzled to understand how a farm servant in a sequestered village should contract the disease. But, on making inquiries, I found the village was situated only three or four miles from a military station. The mystery was thus cleared up.

Once, when visiting some small and secluded villages in the Midlands, I attended many children there, and was not a little surprised to find syphilis terribly prevalent amongst them. Even on isolated farms I found the labourers' children in a frightful state of suffering from the same cause. But my surprise abated when I discovered that these villages were in close proximity to a canal, and situated only twelve miles from a military barracks. The soldiers go on furlough to the rural homes from which they are drawn, and carry the disease with them. An inhabitant likewise informed me that the country girls were in the habit of hanging about the barracks in order to walk with the soldiers. These girls return to their villages, and at the same time bring the disease with them. This is how the malady is spread throughout the land. A more imprudent measure never was contemplated—at least in a sanitary point of view—than the construction of barracks in the immediate vicinity of Oxford. The site was pointed out to me when resident there, and I reflected that unless the Contagious Diseases Act was strictly enforced in that city, the fell disease would be conveyed into the bosom of many of the best families in the land that are now exempt from its ravages.

In the name of household decency and cleanliness, let this Act, or some better one, be put in force throughout the country. As matters now are, the very cup we drink from, the pipe we borrow, may be sources of infection. Only the other day, I was praising the quality of some household bread made on the premises, when, the very next morning, who should be the first to consult me but the cook who had made that same bread—the wife of a sailor. She begged me to prescribe for an eruption she was suffering from on her legs. I found her lower extremities covered with syphilitic sores, some encrusted, some moist and discharging, others cicatrising. And as if that were not enough, she expanded her fingers, and displayed several sores at the roots of them. "Goodness gracious!" I mentally exclaimed, "the *débris* from those sores must actually have mingled with the dough which made the bread!" How that bread did rise on my stomach! I straightway had this cook relegated to her own mansion. And this woman had recently been engaged as nurse to a family of children! Again a butcher's apprentice came to me straight from his master's shop, where he had handled meat all the day long, and showed me the backs of his hands covered with syphilitic pustules discharging quite streams of matter. It would be uncharitable to wish that some of the anti-actionists were supplied with meat by that youth—but really they try one's patience. One more example: I formerly attended a lady, infected by her own husband, whose mouth was thickly studded with syphilitic ulcers. Having no children of her own, she took a great fancy to mine—not a little to my inconvenience, for she was constantly endeavouring to salute them with kisses. This obliged me to put a watch over her movements in order to prevent that mode of endearment, and ward off the probable danger. For until the non-contagiousness of secondary sores has been demonstrated beyond all doubt—which has not been done up to the present time—I deemed a wholesome scepticism the best policy.

It is not merely in the interest of those who voluntarily incur the risk of infection; it is mainly in behoof of the unfortunate married women and poor helpless children, that the humane mind contemplates with satisfaction some such measure as the Contagious Diseases' Act. There are many living besides myself who will remember the words wherewith an eminent obstetrician was wont to address his class in reference to these matters. "Gentlemen," he used to remark, "a pure young girl marries, and then in a few months how changed the scene! A blight seems to have passed over her existence; from a bright, happy girl, she has become an ailing, broken-down woman. The old women say, 'Marriage has disagreed with her.' Gentlemen, *we* know what has disagreed with her—it is this infernal poison." And then he would further add:—"Gentlemen, you will have to do with difficulties in the ordinary way of labour practice; but these difficulties will be as child's play compared with those you will meet with in labour complicated with syphilis."

My dear friends who rave on platforms about that of which you know so little, what would you say if the members of the medical profession declined to attend your daughters—

left them to perish, in fact, as they inevitably would do—when they happened to meet with such adverse fortune as that just alluded to? For even *your* daughters may not be exempt. Very indignant you would be, no doubt. But what right would you have to complain, since you refuse us the protection of the Act? To show that our danger is no fancied one, I will narrate a little history which came under my own cognisance. In the course of travel I chanced to land in the Zulu Islands. Now, it so happened that the King of the Zulus, being an enlightened monarch, and desirous of keeping pace with other nations, had issued a decree making vaccination compulsory on all his subjects, and had appointed medical officers in every district to carry out the provisions of this decree. One of these officers hearing of my arrival, and ascertaining that I was a brother professional, sent me an invitation to his house, which I accepted. On entering I was welcomed by a quiet, amiable old gentleman, about seventy years of age, and evidently in very feeble health. I observed, in course of time, that his faculties, both of mind and body, were failing him; his memory was especially defective. He informed me of his intention to leave his home for a short time for the benefit of his health, and begged as a favour that I would take charge of his practice during his absence. To this proposal I willingly consented. Presently, in the course of conversation, he raised the palm of one hand, and called my attention to the state of the skin. I was rather surprised at what I beheld; but he inquired, "What do you think that is?" And, without waiting for my opinion, he continued —"My medical friends tell me that I am suffering from secondaries." "Well," I replied, "I presume the affection was psoriasis palmaris syphilitica, but I was not rude enough to say so." "Don't you think," he proceeded, "it is very dreadful at my time of life? Don't you think it is very unfortunate?" "Truly unfortunate," I rejoined. "I know," he continued, "that this has not happened from any impure connection. At the beginning of the year I attended a poor woman in labour. She had a sore on her person, and I suppose I took it from contact with that; for, after attending her, I was affected with a very troublesome sore on the first joint of my thumb,"—showing me the cicatrix of a large chancre. "It was such a long time in healing, I thought it never would heal. Yet it never occurred to me to think what it was, and now I am afflicted with all these symptoms. Do you think I shall recover?" I expressed a fervent hope that he would, though I had very little expectation of its being realised. Before his departure, this unfortunate gentleman handed me a lancet wherewith to vaccinate his patients, affirming that it was the one he ordinarily used, and in excellent condition. I received it and placed it in my pocket for use. No great length of time elapsed before an infant was brought for vaccination. I bethought me of the lancet, and, as is my custom, carefully examined it to ascertain whether it were perfectly clean. What was my surprise to find it thickly coated with dried blood and serum. I straightway applied to the niece, who acted as housekeeper to her uncle, for another instrument. "Why," she exclaimed, "cannot you use the one uncle gave you? I have no other." "Because," I remarked, "it is stained with blood." "Nonsense," she replied. "Indeed, I assure you it is so, as you will perceive if you have the goodness to inspect it." I handed it to her. "Oh," she exclaimed, "I know how that happened; I opened an abscess with it in uncle's neck some time ago, and I suppose I put it away without wiping it." After having endeavoured ineffectually to cleanse it—not with any view of using the instrument, but only to render it less dangerous in the hands of others,—I returned it to the niece, remarking that it might possibly infect anyone for whom it was used. Poor girl! she was quite ignorant of the terrible danger lurking in the instrument. As no other lancet was forthcoming I effected the vaccinations with the point of a darning-needle. Had a Contagious Diseases Act been in force throughout the kingdom of Zulu, this poor gentleman might have escaped the ruin of his health. Further, had provision been made for the superannuation of vaccination officers when the decay of age rendered them unable to perform safely the duties of their office, this dangerous incident of the lancet would never have happened. How are we, in England, situated in this respect?

It has always appeared to me that a Contagious Diseases Act is the needful corollary of a compulsory Vaccination Act. Every day the onward march of syphilis renders it more difficult to obtain lymph from untainted sources. No one can estimate the blessing of vaccination more highly than I do. Nothing can ever displace Jenner from the lofty pedestal on which he stands, to all time, as one of the great benefactors of mankind; but it is a question whether it would not be wiser to lengthen the period for vaccination from three to six months, so as to give time for the signs of hereditary taint to develope themselves. The complication of teething with the maturation of the vaccine vesicle is undesirable, but this is a minor consideration in places where syphilis is very prevalent, as in Liverpool and other seaports, for instance. I know there are some medical men who disbelieve that lymph taken from infants affected with secondaries, if free from blood, is capable of conveying any infection. Much less would these hold that there is any danger in vaccinating from a source where there is only a remote hereditary taint, except perhaps in the case of their own children; they would hardly manifest such faith in their doctrine as to vaccinate their own offspring from a child suffering from secondaries, or even from a minor degree of infection. Till this difficult question is set at rest, which is far from being the case at present, we are bound to take every precaution—and foremost in the way of precaution stands an efficient Contagious Diseases Act. The relation of preventive measures against the spread of syphilis to the preservation of a pure supply of lymph has not been sufficiently urged on the attention of the intelligent laity.

There is no spot on the face of the earth, not even excepting Marseilles, where syphilis is so rife, in all its phases, as in Liverpool. It would be difficult to ascertain which produces the more disastrous consequences in this town—the traffic in drink, or the traffic in syphilis. It is a question whether there be a single family in Liverpool, that has resided there for two or three generations, which is wholly free from some hereditary taint. Nowhere else can hereditary syphilis be studied with so much facility. If the general practitioners of Liverpool would make accurate records of what is passing before their eyes every day, what a flood of light might they not throw on the questions I have enunciated at the commencement! I know too well what the trials of the general practitioner are. I know that when, in the evening, they return to their homes fagged to death, and sink into the chair by their firesides fairly exhausted, they must feel little inclination to leave the companionship of wives and children to work at reports. Yet we must appeal to them, because it is they, and not hospital physicians (who see their patients only for a short time, and know nothing of their family histories), who have the best opportunity for enlightening us as to the phenomena of inherited syphilis. There must be many old practitioners in Liverpool who have seen the children and grandchildren of syphilised parents grow up and intermarry. These men could do much to answer my questions would they set their minds on the task. It may be asking much of them in suggesting this in addition to their daily labours; still, the questions are momentous and worthy of some sacrifice.

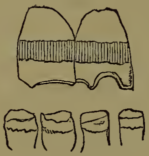
ADDENDUM.

Since writing the above a few other cases worthy of record have come under my notice. I happened, towards the close of last year, to be resident in a large village situated about twelve miles from a garrison town and four miles from a seaport of some pretensions. Of course, syphilis was widely spread throughout this district, and I had an opportunity of sketching some suspicious teeth. Sketch No. I displays the incisors of a married woman, aged sixty-three years; and No. II the two upper incisors of her daughter, a young married woman of twenty-four. In both instances is seen that magnitude of the upper incisors which, so far as my observations go, is so often associated with an inherited taint. The mother's teeth exhibit the horizontal line (to which I have previously called attention) very broad and very strongly marked; the left upper incisor has the characteristic notch; in the lower teeth is seen a narrow and serrated line. The notching is but faintly indicated in the teeth of the daughter, and the serrated horizontal line manifests itself only on the two middle and upper incisors. The vertical lining seen in this case is sometimes associated with white patches in the enamel, somewhat resembling the cloudiness which affects the cornea in specific keratitis. Her remaining teeth presented nothing worthy of note. This young woman was the mother of one child, a large infant of relaxed fibre, and about seven months old when I saw it. As the child had not cut any teeth, I had no opportunity, in this instance, of observing the appearance of the teeth in the third generation. No. 9 presents a drawing of the incisors of a woman aged forty-nine years, residing in the same locality. These teeth have the usual large development, and which are remarkable for the manner in which the serrations of the horizontal line dip deep down into the lower portion of the enamel. This woman was subject to fits, and possessed a silly, idiotic countenance. Of her two children, one expired in a fit at four years; the other, now twenty-four years of age, has, she assured me, outgrown the fits to which he was subject.

Quite recently I was located for some weeks in a large village situated on a canal, about twelve miles from a seaport, and six miles from a market town. Syphilis was very rife here, and the general tone of morals was extremely low. Indeed, out of sixteen children which I vaccinated in a fortnight, nine were illegitimate. The gang system was in full operation; but the male and female workers are, however, now separated. In this place I was fortunate enough to meet with the rare opportunity of observing all the offspring of two syphilitic brothers. The teeth of these latter are exhibited in drawings Nos. 1 and 6. The father of these brothers, still living—a gay old gentleman, seventy-one years of age—suffers from a stricture arising through, or aggravated by, an attack of gonorrhœa contracted six years since. I made no inquiries concerning syphilis, as I was a stranger to him, and attended the old gentleman merely for an attack of bronchitis. But having contracted gonorrhœa at sixty-five, it is not unlikely that he was the subject of a primary sore between twenty and thirty.

There is decided notching in the teeth of both brothers, though this feature is more marked in the children than in their parents. Certainly, the teeth of No. 1 are very remarkable: there is the horizontal lining, but in the left upper incisor it was formed by a number of indentations (the enamel not being carious) dipping down into the dentine, and presenting the appearance of a series of little chambers. In one of the lower incisors a portion of tooth showed all the appearance of having been carefully sawn out, and afterwards cemented in. The prevailing hue of the teeth was a dirty yellow, and the whole surface irregular in the highest degree. It will be seen that the teeth of the children become less notched from the eldest downwards. But in No. 5, though there is scarcely any notching, there is rather a serious state of things exhibited

I



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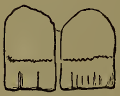

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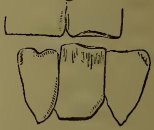

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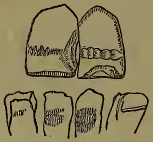

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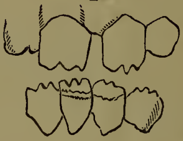

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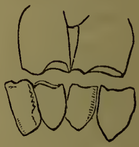

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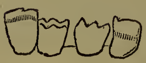

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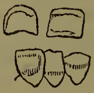

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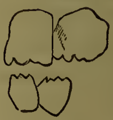

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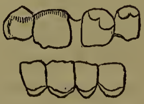

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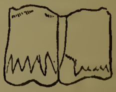


by two of the upper incisors—viz., an ulcerative action tending to the circular form, which has eaten through the enamel and attacked the dentine beneath. Some months ago this little girl fell from a low bedstead and bruised her thigh. This injury, though trivial, was followed by a periosteal tumour. I examined the limb, and found the remains of a tumour still existing on the anterior aspect of the thigh, and apparently of periosteal character. Keeping in view the ulceration of the tooth, might we not, *à priori*, have predicted the likelihood of such a tumour arising from the accident to the limb? I presume that every surgeon has observed a carious condition of the teeth—of strumous rather than syphilitic character—associated with hip-joint disease in children. This strumous condition of the teeth may be crossed by syphilis, and thus present complications not easy to unravel. The fine black line seen at the base of this child's lower incisors was continued inwardly at the base of the molars.

The majority of these children were the reverse of robust, and No. 4 manifested that solemn and adult deportment which so often characterises children tainted with syphilis. I am not aware that the remarkable gap here noticeable between the incisors is in any way connected with syphilis, though it is slightly indicated in II and 9, and I have seen it before in syphilitic subjects. In the present case it was inherited from the mother, whose teeth, though of yellowish tint, showed no syphilitic peculiarity. In appearance, however, this lady exhibited the most marked syphilitic cachexia. She had borne five children, and had experienced in addition four miscarriages. The children of the second family were all unhealthy, and were affirmed so to be by their own mother, who had experienced much difficulty in rearing them. It is not a little remarkable that in this family the eldest daughter and son, aged respectively nineteen and seventeen, showed no notching or other syphilitic appearance about the teeth, the colour of their teeth, however, being a dirty yellow. The scalp of No. 7 was affected with a mass of sores after vaccination in infancy. This eruption the mother attributed to the use of impure lymph! The nervous anxiety which the mothers of syphilitic children betray as to the source of the lymph from which their own offspring are vaccinated is truly ludicrous. Little dreaming that the impurity is in the blood of their own children, they invariably assign impure lymph as the cause of any eruption which appears subsequently to vaccination.

After several years of observation amongst the manufacturing, mining, rural, and seafaring populations of this country, my latest experiences only urge on me more strongly the conviction that syphilis is spreading—chiefly through the agency of speed in locomotion—in such a manner that blood as yet untainted has its chance of escaping contamination diminished every year in exact proportion to the increase of cheap and swift locomotion; and tainted blood has every year a less chance of recovering itself. When medical men and educators have expended infinite pains on sanitation and hygienic exercise, it is really heartbreaking that an infernal poison should run riot unchecked in our midst, and undo in one moment what has taken years to build up. In face of these considerations, who is there having reared a daughter—strong, comely, and untainted—that does not shudder at the future which may lie before her? Certainly, he will not be unaffected who travels much, and knows intimately the history of many families. I write more in the interests of good form and manly vigour of body and mind than as taking any special interest in the pathology of syphilis for its own sake. Would that there were no such "pathos" to study!

As associated with the training of many hundreds of athletes, I know how difficult it is to find in youths tainted with inherited syphilis that spontaneous activity which is the very essence of athleticism, and without which the trainer may try his art in vain. To borrow a phrase from the fine arts, youths of this sort seem as if they had been scumbled from birth—a blight seems to have passed over them; their sluggish movements cause the gymnasiarch to despair. In vain does Ulysses mingle foils, gloves, and sabres with his wares; these remain unheeded, whilst the trinkets excite a solemn and languid pleasure.

OXYCHLORIDE OF ZINC.

By F. M. Dixon, D.D.S.

Read before the Odontographic Society of Pennsylvania.

(Reprinted from the 'Dental Cosmos.')

(*Continued from p.* 436.)

Too much care cannot be observed in the proper accomplishment of every part of the process, from the preparation of the cavity to the final finishing-off of the filling. One of the indispensable necessities is to keep the cavity and filling positively and entirely dry, not only during the operation, but for as long a period afterwards as practicable; for if the chemical combination is completed and the residue of the chloride thoroughly evaporated before the fluids of the mouth are allowed to come in contact therewith, it will become almost as solid as marble. In order to effect this object I avoid, if possible, placing the elastic cloth over any other than the tooth about to be filled, cutting the hole through which the tooth is to be passed as small as it is practicable to get the tooth through without tearing the rubber; tying—if possible—considerably above the cervical margin of the cavity, with a hard twisted linen thread, large enough to secure against the danger of pulling the elastic over. After packing as described, I press on to the exposed face of the filling as much of the dry oxide as practicable, with a view to absorbing as much as possible of the chloride.

I then draw the elastic over the tooth, tying it firmly over or under the grinding surface, cut off with a pair of scissors the surplus, and send the patient home with a filled tooth tied up in a rubber sack so securely that when the string is cut, any number of hours afterwards, the oxide that was in a dry condition over the surface will be found as free from moisture as when placed there.

I then cut, with suitable instruments, the surface into its proper form, polish carefully, and the work is completed.

And now, gentlemen, lest I may be misunderstood, let me remind you that these fillings are not recommended as permanent where gold can be successfully used, though I hope and believe the day is not far distant when this compound will be so improved as to render it available even as a substitute for gold in a vast number of cases for which gold only is now considered the proper material.

I would next draw your attention to some of the cases for, and circumstances under which, I consider oxychloride of zinc invaluable,—not as temporary work strictly,—cases where all, I think, would find it subserve an excellent purpose would they give it a fair trial. One of the most prominent of these is where the body of the dentine is almost or entirely gone, leaving a mere shell, especially where there is great irregularity in the form of the cavity, and where there are overhanging walls, or, as frequently expressed, undercuttings.

To fill such a cavity full and well with gold, under-packing completely, and securing against possible leaks, is one of the most delicate, tedious, and uncertain of operations.

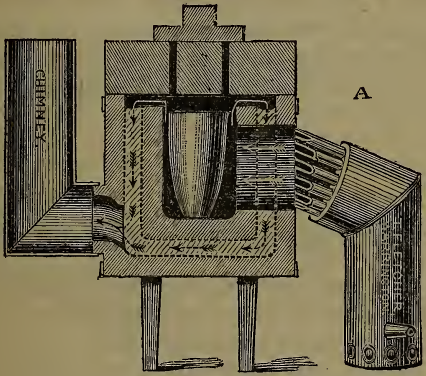
Filling such a cavity one half or two thirds with oxychloride of zinc (including all its under-cuttings, of course) must, I think, be considered the better practice by far, for reasons too apparent to need explanation: again, where patients come under treatment, for whom there is so much to do as to render it impracticable that all shall be accomplished within the time that you or they can properly devote to a single siege, especially where the patient's health is such as to forbid a series of long operations with gold: again, where there is a good reason for wishing to divide time, labour, and expense between the present and a series of following years, what a comfort to both patient and operator that the larger cavities can now be filled with this material, knowing that, if properly done, it will save not only a large outlay of labour and strength, but that for a number of months, at least,—in many cases for years,—it will render perfectly safe the organ so filled; and that at pleasure, or when necessary you can pack over these a plate of gold which, carefully done, will not only look as well, but be as good, if not better, than the best solid, all-gold fillings that could be packed into such cavities. I say better, because of the certainty with which leaks are avoided, and, if the tooth be very sensitive, because of its less liability to the painful effects of thermal changes. But time will not admit of a further continuance of the subject now. I have, however, under way some experiments in numbers of mouths, and am preparing for more, the results of which, I sincerely hope will be worth presenting, and if they prove so be assured they shall not be withheld.—*The Dental Cosmos.*

Miscellanea.

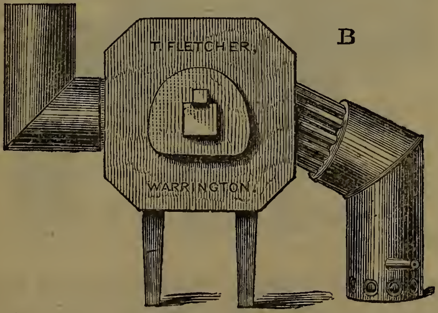
FLETCHER'S COMBINED CRUCIBLE AND MUFFLE FURNACE IN ONE WITHOUT ANY LOOSE INTERNAL FITTINGS OR PARTS, AND REQUIRING NEITHER BLAST NOR ATTENTION.

This represents a great advance in draft gas furnaces, which have been up to the present time delicate, complicated, and requiring fragile and expensive internal fittings. It has always been taken as a law that the furnace burner must of necessity be upright, and therefore in a position most exposed to injury in case of accident, entailing also considerable difficulty in supporting the crucible. The burner of this furnace not only works satisfactorily on its side, but gives a duty for the gas consumption equal to that of the best upright burners ever constructed.

The heat is utilised to the fullest extent by return flues in the body of the casing which act as a regenerator, and also by the use of the special non-conducting material, the discovery of which enabled the enormously high temperatures to be obtained in the injector furnaces brought out last year. This furnace is not designed or intended as a high temperature furnace, the maximum being barely the fusing point of cast iron, but it is designed for the thousand and one uses for which a furnace giving moderate heat is so urgently needed by jewellers, analysts, assayers, &c. When placed with the lid on the top (Fig. A) it forms a simple and efficient crucible furnace, taking crucibles not exceeding 4 inches × $2\frac{1}{4}$ inches. The crucible stands on the solid bottom of the furnace below the level of the burner opening. When turned over on its side (Fig. B) it forms an equally simple and efficient muffle furnace, so simple that any jeweller may at once assay correctly in his shop any samples of precious



Arranged as a Crucible Furnace.



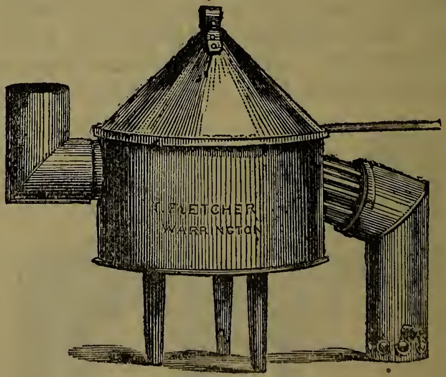
Turned over on its side as a Muffle Furnace.

metal offered for sale. The burner is similar in principle to that of the small laboratory furnace, and requires a $\frac{3}{8}$ clear bore gas pipe and a meter tap (common gas taps choke the gas supply seriously). When the furnace is used for muffles a top or bottom heat can be obtained at will by raising or lowering the lid in which the mouth of the muffle fits.

This furnace is at present only made in one size, as above. The gas supply must be sufficient for the burner to have a slight tinge of white in the flame, which must also be just visible at the hole in the chimney elbow. Owing to the chimney hole being at a lower level than the burner, the flame requires a few seconds before the chimney begins to draw. This can be prevented by holding the lighted burner against the chimney for three or four seconds to warm it, but in practice this will not be found necessary.

FLETCHER'S IMPROVED LADLE FURNACE.

This form does away with all the objections to the original pattern. The burner is at the side safe from injury, if the metal is spilt over the edge of the ladle. All metal spilt collects in a button, and can be taken out without loss when cold. The chimney is a fixture, and by adding to or reducing its length any power or speed of working may be obtained at will, depending on the available gas supply. The time required to melt a 7-inch ladleful of zinc (total weight 13lbs.) is, with 3-ft. chimney, 24 minutes, with 5-ft. chimney 20 minutes, and so on in proportion. Lead and tin require



about one third the time. The inner portion of the furnace is strong cast iron, and the whole arrangement is made to stand constant hard work without injury. Gas supply required from 20 to 30 ft. per hour, depending on the length of the chimney. The flames must burn with a slight tinge of white at the tips, and should be just visible at the small hole in the chimney elbow.

This furnace works satisfactorily with a simple gauze burner, but requires fully one third longer time to obtain same results with the same chimney and gas supply.

NEW DENTAL CHAIR.

We have received so many communications respecting the chair mentioned in our July issue that we much regret we cannot at present give any definite information on the subject, but we believe we are justified in stating that it will eventually be brought out under good management; and, meanwhile, any inquiries on the subject addressed to W. G., care of the Editor, will receive attention from the inventor.

ASH'S NEW CIRCULAR GOLD PELLETS AND ROCK CEMENT.

We have been favoured with a sample of this very excellent addition to our stock of Dental materials, and in one sense cannot speak too highly of it, but yet we are somewhat puzzled how to write of it, seeing that, whilst praising it, we must appear to contradict the statements of Messrs. Ash. We can, however, only speak of it as we find it, and must leave our readers to try for themselves, and correct our account if their experience does not tally with ours.

The circular form we have certainly found most useful and convenient in many cases, but then Messrs. Ash claim that they are non-adhesive without heat. Now, we have found them to be some of the most perfectly adhesive pellets we have ever used *without heat;* taking them straight from the box to the tooth, in our hands they pack like so much putty, but in all attempts to use them as non-adhesive we have signally failed; therefore, though we can cordially recommend them to the attention of our readers, it is only as adhesive gold, and trust that we shall be favoured with the result of others' experiments.

We would take the opportunity of referring with pleasure to Messrs. Ash's rock cement. There are now many varieties of osteoplastic cements in the field, most of which are so good that it seems almost invidious to speak especially in favour of one more than another, and this, the rock cement, has had as yet but short trial; nevertheless, as far as our experience goes, it does not belie its name, and knowing the care with which Messrs. Ash always conduct their experiments prior to introducing any new material to the profession, we should augur well for its future success.

EXAMINATION FOR THE DENTAL DIPLOMA.

We have been favoured by a successful candidate with the following sketch of the questions asked him at the last *viva voce* examination for the Dental Diploma:

By Mr. Salter.

What are contour lines?

The structure of the gums.

Exostosis. Whether ever vascular?

Various forms of secondary dentine.

Variation in thickness of cementum in different parts of the fangs.

By Mr. Barrett.

Instruments used for extraction of the teeth.

Use of elevator. Why not used for upper wisdom teeth?

Shown several models of irregularity—how would you treat them?

Hæmorrhage after tooth extraction.

With crowded mouths, what teeth would you remove, and why those in preference?

By Mr. Savory.

Describe the ethmoid bone.

Give the openings into the three meatuses of the nose.

Shown a preparation in pickle of half the head and neck cut vertically, point out the several structures exposed and cut through.

By Mr. Birkett.

Definition of an ulcer.

The distinctive characters of a simple, irritable, indolent, and varicose ulcer.

Cause of a varicose ulcer, and its treatment.

What is a granulation?

How do ulcers usually heal?

THINGS A DENTIST OUGHT NOT TO DO.

Having once selected a house or office he ought not to remove if he does not want to lose half his practice. He will find to his sorrow that his patients, like his cat, object to be moved. He may either commence in a house so large and expensive that he cannot pay his way at first, or he may take one a moderate fit, and when his family may be counted by teens he must squeeze them closer. Let him bear in his mind the good old saying (revised), Three fires are as bad as one remove (nearly).

He ought never to smoke; it is a dirty habit, and an annoyance to patients.

He ought to be a total abstainer, to prevent annoyance to patients and keep his hand steady.

He must never work unless in first-rate health and condition, as his results may not be up to the mark and may be seen and condemned by the opposition man (or somebody else).

He must never go out of doors in daylight; patients are certain to come the moment he has turned the corner, and to grumble about waiting.

Going out after dark should never be indulged in, as patients are liable to come to make appointments.

He must be civil and agreeable to all, especially when he is knocked up at half-past one some frosty morning in mistake for the doctor round the corner.

He must have a pleasant smile and greeting for all patients he meets out of doors, especially for young middle-aged ladies who have had a bran new set of teeth and do not like it to be known.

He must do all his artificial work himself or it is not fit to be seen.

Perfect personal cleanliness is essential, and he must therefore not soil his hands with any work except operating.

He must not advertise or put the word Dentist on his door plate, as it is not respectable, but must wait for the kindly appreciation and favour of those who are unaware of his existence. If any one wants him they will find him, especially if they are not aware that he has ever been born and has to earn his own living.

When any new appliance is introduced he must not use it; patients object to be experimented on.

He must not stick to old-fashioned ways or he is left behind in the march of improvement and is an antiquated stupid.

He must not expect any appointments to be kept to time; people have something else to do than bother with him just when they may be busy with something else.

He must give no pain under any circumstances, and must make his work everlasting.

Finally, he must have the patience of Job, perfect health and skill until he is dead, must never make a mistake, and must spend every penny he gets in keeping up an appearance. The union will, of course, provide for him in his old age if he never removes.—T. F.

LEMALE'S NEW VULCANITE TEETH.

These teeth are described as being made upon the principle of the flat-back dovetail, but it is scarcely correct to add that "they are intended to supply a want hitherto unattained;" as, if our readers will turn to page 490 of our issue for May, 1859, they will find there a sketch and description of a similar kind of tooth made by the late Mr. Taylor from our own pattern. The Messrs. Ash also made several for us, but never kept them in stock as Mr. Taylor did. We are well pleased to see them now again introduced, and are quite willing to allow Messrs. Lemale every credit for the idea, as they may not have seen either the engraving or the account referred to. We now republish it, as there is one point, the description of which we have italicised, wherein the old pattern has not been followed, and might be so, to our thinking, with advantage:

"These teeth consist of the ordinary flat tooth with a buttress of the same material standing against the back of it in place of the usual pins; the buttress runs the whole length of the tooth from root to crown, *narrowing as it approaches the cutting edge of the crown,* and constricted in its whole length where it is connected with the tooth, thus dovetailing in every way with the vulcanite."

In some patterns the buttress was not carried quite to the masticating surface, which was left perfect as in the ordinary flat teeth with crowns. We always objected to the perforation of the buttress for the convenience of stringing the teeth, and we are glad to see that Messrs. Lemale have some sets free from this objection. The new teeth are, moreover, much better made than the older ones, and the angles of the buttress are much more clearly and sharply defined.

ON THE USE OF THE LEVER IN ROTATING MISPLACED TEETH.

By Henry Dodge, M.D., D.D.S.

The following method has been attended with success in the writer's practice, and, so far as he is awere, has not been before described:

A cap of gold or other material should be made to fit the tooth which it is desired to rotate. This cap should be open at the sides, so that it will not at all obstruct whatever space there may be between the tooth to be operated on and the adjoining tooth on either side. The material of which the cap is made should be of so elastic a nature and so strong that the cap will clasp the neck of the tooth on the labial and lingual surfaces, much as a tooth is clasped by a rubber dam clamp. If, from the conical form of the tooth, it is not possible to obtain in this way a sufficiently strong hold upon it, the cap may be held in place by tying it firmly with a silk or twine ligature passed around the neck of the tooth. Having thus *taken hold* of the tooth, what is needed is a handle to turn it with. A strip of gold plate or wire should be fastened strongly to the lingual side of the cap, near the neck of the tooth, and extended half an inch or more along the roof of the mouth horizontally, but conforming sufficiently to the surface of the hard palate to avoid the tongue. A hole should be drilled through the free end of this gold slip or lever, and a ligature or elastic having been passed through this hole should be fastened to one or more teeth on the opposite side of the mouth in such a way that the force exerted by the ligature or elastic, when drawn tight, will act upon the lever and powerfully and promptly rotate the tooth, as the rudder of a boat is turned when the helmsman presses with his hand upon the tiller. A few days will suffice to turn the tooth as desired, when the usual retaining-plates may be applied.

APPOINTMENT.

F. Leicester Silani, Esq., has been appointed Honorary Surgeon Dentist to the Deaf and Dumb Asylum, Margate.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

To the Editor of the 'British Journal of Dental Science.'

Sir,—Thinking it is not generally known that licentiates of Dental Surgery are exempt by law from serving on county or borough juries, I wish to inform my professional brethren that such is the case; at least I am led to believe so by the fact that on appeal before the magistrates I was allowed exemption.

I am, &c.,

Charles Sims.

Birmingham.

[Mr. Sims was fortunate, but incorrect in his inference.]

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.

Answers to Correspondents.

"J. H. P."—Shall be noticed in our next.

"Student."—Please forward your card.

"Dental."—The gentleman you refer to is a L.D.S.

"J. O."—Paper received with many thanks.

Communications have been received from W. Spencer Watson (London), Felix Weiss (London), Thomas Fletcher (Warrington), James Merson (London), F. Leicester Silani (Margate), F. H. Balkwill (Plymouth), George Barraclough (London), E. Balding (London), Charles Sims (Birmingham), Andrew Wilson (Edinburgh), John O'Duffy (Dublin),

BOOKS RECEIVED.

'The Students' Journal and Hospital Gazette.'
'Le Progrès Médical.'
'The Dental Register.'
'Chemist and Druggist.'
'The Dental Cosmos.'
'The Halifax Courier.'
'The Sheffield Daily Telegraph.'
'The Druggist's Advertiser and Trade Journal.'
'The Doctor.'
'The Staffordshire Sentinel.'
'The Dublin Morning Mail.'

British Journal of Dental Science.

No. 245. LONDON, NOVEMBER, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London
Ophthalmic Hospital, and to the Central London
Ophthalmic Hospital.

(*Continued from p.* 524.)

Erectile or Cavernous Tumours.—Intermediate between the cystic or fluid expansions of the antrum and the solid tumours, may be placed the cavernous or varicose tumours, of which, however, I can only find two examples recorded: one is found in M. Josh. Gensoul's 'Lettre Chirurgicale sur des Maladies Graves des sinus Maxillaire,' and is related as follows:

Mademoiselle Monique Tournier, æt. 35, living at Moirans Department of Isere, perceived in the year 1820 that a tumour was elevating the right cheek bone, without causing the slightest pain and without any assignable cause. She had enjoyed good health from her birth; her constitution was strong, her temperament sanguine, so that she at first troubled herself very little about this tumour, which acquired the size of a walnut, and then remained almost stationary until the year 1823, when the gums of the right side of the upper jaw became swollen and seemed to soften to the extent of simulating the presence of pus. A physician whom she consulted, misled by this appearance, incised them: they gave out nothing but blood, and the tumour continued to increase, so as to become double its original size in a year.

Mlle. Tournier then called in M. Renaud, a skilful surgeon of Grenoble, who tried to remove the tumour by opening widely the softened jaw above the roots of the teeth, and tearing away the tumour from the interior of the maxillary sinus, where it had originally commenced. Subsequently to that operation two fistulous openings formed, which only closed six months afterwards. But the patient did not fail to perceive that the operation had been insufficient. The tumour took on a more rapid growth, and it had acquired a considerable bulk when she presented herself at the Hôtel Dieu, on January 6th, 1828. The right cheek was then much elevated, the right nasal fossa completely obstructed, the palate pressed down into the mouth, the teeth buried in the tumour, and only their lower surfaces could be distinguished. The enormous enlargement of the maxilla and its displacement towards the mouth and nose caused an obstacle to the articulation of sounds and to deglutition. If pressure was made somewhat firmly upon the affected cheek a noise was heard, a kind of crepitation, as if parchment was being rubbed between the fingers, and one could feel distinctly that the attenuated bony palate yielded and returned on itself.

I persuaded the patient to submit to an operation which would rid her for ever of the tumour, and which could alone arrest the course of a malady of such gravity. She consented. I prepared her during some days by a mild regimen, &c., and on January 21st proceeded to the removal of the maxilla of the right side. I commenced by making three incisions in the cheek, similar to those in the case of Véricel, only that the fourth incision, which descended by the side of the masseter, seemed to me useless. These flaps being raised and held back, I cut the bones with the aid of a chisel and mallet; but in this operation I only took away a small portion of the malar. I then proceeded to displace the tumour, it yielded with marvellous facility; I detached it from the roof of the palate by the aid of a bistoury. This operation was quickly over (two minutes and a half), which was due to the slight consistence of the bones that I had to divide. The patient was placed on her bed, and I allowed the flaps to remain raised, and not united for about one hour after, in order that time might be given for the re-establishment of the general circulation in its normal rhythm, and for the arteries to furnish blood; but, as in the preceding case, there was only a slight bleeding.

The bottom of the cavity, which we had leisure to observe in that interval, afforded us a view of the posterior nares, represented by the pterygoid plate on one side and the vomer on the other. There remained besides a small portion of the maxillary bone, near the fundus of the orbit, but as it was quite healthy I did not attempt to remove it. * * * The patient made a good recovery.

The tumour, examined after its removal, had a spherical shape. In order to judge of the nature of the disease, we had to open from behind the antrum, which I had removed entire and preserved intact. I raised a bony plate of the size of a five franc piece, and I could then perceive a soft vascular tumour, having the aspect of an erectile fungus. I had the vessels, which were very apparent, injected with mercury, and this metal, which instantaneously circulated throughout all parts of the tumour, left no doubt as to its nature. I should add, that when I opened the antrum the tumour allowed the blood it contained to run out, shrunk on itself, and remained attached to the osseous walls only by cellulo-vascular prolongations.

The compressibility or spongy feeling of the tumour through the attenuated wall of the sinus must have given the surgeon a suspicion of its true nature, though in the narrative of the case no mention is made of the diagnosis. The treatment by removal of the upper jaw was certainly justifiable in this case, the antrum being quite full of the cavernous tissue.

It is possible that at an early stage the actual cautery would be equally efficacious in a similar case, and for a convenient form of cautery for this purpose, I may refer to a case reported in the 'Clinical Society's Transactions,' with a drawing of the instrument employed.

The second case is cited from the practice of Mr. Liston, in the 'Lancet,' of October 9th, 1841, and October 26th, 1844. It was taken from a young man of twenty-one years of age; had been growing for three years; projected into the nares and pharynx and formed a tumour on the cheek. It did not involve the alveolar border nor the lower and anterior part of the jaw, and consisted entirely of erectile tissue, though it at first sight looked like a fibrous tumour.

SUBSECTION 5.—*Solid Tumours of the Antrum.*

Dentigerous cysts occasionally undergo changes of various kinds, so that, from being originally bags of fluid with the tooth attached to the wall and lying partly within the cavity, they may, at a very advanced stage, come to resemble solid tumours. Mr. Samuel Cartwright possesses a preparation of a bony cyst occupying an expanded antrum attached to its floor, but unconnected with it elsewhere. The cyst contains in its interior a supernumerary tooth, lying loose in its cavity. In such a case as this the diagnosis would have been very difficult, and the cystic origin of the tumour could not have been ascertained previous to an operation. The growth would have been stationary for a considerable time, and therefore no interference will be thought desirable.

Polypi in the antrum are very uncommon in the mucous or gelatinous form, but epuloid or fibrous or sarcomatous tumours have often been classed as fungus or malignant polypus, when met with in this cavity.

The case of vesicular polypus described by Virchow ('Die krankhaften Geschwülste,' vol. i, p. 245) does not belong to the same class as the mucous or gelatinous polypi of the nasal fossæ; it is rather related to the mucous cysts mentioned in a former page as occurring in the antrum, and being the first stage of the so-called dropsy. The cystic or vesicular polypi, described by Mr. Cæsar Hawkins ('Contributions to Surgery and Pathology,' vol. i, p. 233) as occurring in the nasal fossæ generally, are no doubt of the same kind, and all are similar in origin to the mucous cysts met with in the lips and inside of the cheeks. None of them appear to have much clinical interest, and they are only pathologically important as being the possible origin or starting point of more serious disease. Luschka has found these cystic polypi or mucous cysts in the antrum in five out of sixty subjects examined. (Luschka, 'Ueber Schleimpolypen der Oberkie-ferhöhlen,' 'Virchow's Archiv,' 1855, viii, p. 423.)

The ordinary gelatinous polypus in the nasal fossæ may occasionally grow to such a size that it causes absorption of the inner wall of the antrum, and then partially occupies it, but the more common course is for the polypus to push the antral wall before it, contracting its cavity, but leaving it still intact as a separate sinus.

Of polypi originating in the antrum an example has been already mentioned at p. 289 of this Journal (see Subsection 3, on 'Abscess of Antrum'). The presence of the polypi in this instance was not suspected, until they made their escape in a decomposed condition, through the posterior nares into the pharynx and were expelled through the mouth. The sinuses closed up, and the purulent discharge, that had been so long troublesome, now ceased; it was evident that the suppuration had been due to the presence of the polypi, and that the inner wall of the antrum had become absorbed, or had suddenly given way, from ulceration and internal pressure combined. The exact nature of the polypi in this case could not be ascertained because they were decomposed, and microscopic examination failed to throw any light on their structure. But it is most likely that they resembled the mucous cysts and vesicular polypi, rather than the gelatinous form; and the fact that there was no history of any polypi in the nasal fossæ associated with the disease in the antrum, makes it more likely that this was the true explanation of the case. Sir James Paget is of opinion that the soft polypi that "grow, very rarely, in the antrum" are just like the mucous, gelatinous, or vesicular polypi that are commonly met with in the nostrils.

The various *solid tumours* that affect the upper jaw, when they grow to any considerable size, very commonly invade the antrum, or encroach upon its cavity by compressing its walls in various directions. There are, however, very few cases in which it can be said that the disease is essentially a disease of the antral cavity, as having commenced within it, though, regarded clinically, it is often convenient to classify growths as coming from the antrum, which have, as a matter of fact, only secondarily invaded it.

Sarcomatous and *epulo-fibroid* growths often penetrate the alveolar ridge and grow into the cavity of the upper jaw, and the disease then becomes more important as regards the whole jaw than as affecting one of the accessory cavities of the nasal fossæ.

Mr. Carr Jackson recently operated on a case of this kind, at the Great Northern Hospital, in which after removing a portion of the antrum involved in the growth, he found a tooth lying loose in the cavity. This complication had no doubt arisen from the disease having sprung from the socket of the tooth, and from the latter having been carried upwards in the diseased growth and at last separated from it by ulceration or necrosis.

There is a remarkable preparation of a *villous fibroid growth* in the antrum, in the College of Surgeons' Museum. This specimen was taken from a patient operated on by Mr. Christopher Heath, who, in his work on diseases of the jaws, gives the particulars of the case. The interior of the antrum was covered with a remarkable papillary or villous growth, resembling some forms of cauliflower excresence; a quantity of broken-down loose fibroid tissue lies at the bottom of the bottle containing the preparation. The rest of the tumour consisted of polypoid growths.

Mr. Christopher Heath gives the following account of this case in his essay 'On the Diseases of the Jaws':

> In September, 1866, Dr. Whitmarsh, of Hounslow, brought to me a gentleman who two years before had perceived some growths in the right nostril, which gave no pain but kept up a constant discharge, especially at night. In the early part of the year they had been removed in part by a surgeon, and since that the growth had much increased. There was a fungous growth in the right nostril, and the whole right maxilla was swollen, and discharged their pus at one or two points near the eye. All the teeth on the right side are gone. There is a fungous looking growth in the molar region, and a probe passed up easily by its side into the antrum. I removed the disease on September 23rd, clearing away the whole of the growth, which was very friable, add leaving the posterior wall of the antrum and the infra-orbital plate untouched. In the course of the operation I found a distinct polypoid growth filling the posterior nares, which I removed. The patient rallied well from the operation, but unfortunately got congestion of the lungs and died on the fifth day.

The late Mr. Bruce's report on the above specimen is as follows:—"It appears to consist of a fine soft fibrous stroma, in which very numerous nuclear bodies and a few elongated fibre-cells are distributed. Its structure resembles that of the upper strata of a mucous membrane, from which it is probably an out-growth. It consists of newly-formed fibrous tissue and of the elements from which fibrous tissue is developed, and may, therefore, be classed among the simple fibro-plastic growths as distinguished from the true myeloid tumours."

The remarkable and unusual points in the above specimen are that this form of polypus should have originated, as it appears to have done, within the antrum, and that it presented, besides the ordinary pedunculated form of polypi the soft fleshy villosities on some portions of its surface. It must be regarded as an unique specimen.

Fibrous, fibro-sarcomatous, and *osteo-sarcomatous* tumours also invade the antrum from the neighbouring bones or cavities, though it is not often that the tumour actually springs from within it. But a specimen in St. George's Hospital Museum is described as "Fibrous tumour growing from the antrum, and making its way by the absorption of the walls of that cavity in different directions. It projects upwards into the orbit, destroying the floor of that cavity, and protruding from its inner margin forwards on to the cheek. It has also destroyed the anterior wall of the antrum, and displaced the malar bone forward and outward; inwards it projects into the nose beneath the middle turbinated bone, and downwards it makes its appearance on the under surface of the alveolar process in the form of a rounded mass, destroying the floor of the antrum in the neighbourhood of the front molar tooth. Behind, the tumour appears in the zygomatic fossa by the absorption of the outer part of the tuberosity of the superior maxillary bone. The tumour is composed of circular nuclei of various sizes, aud spindle-shaped fibres. The patient from whom the specimen was taken, William A——, died of arachnitis and softening of the corresponding part of the brain." Catalogue of St. George's Hospital Museum, vol. ii, p. 160.

A similar specimen may be seen in the College of Surgeons' Museum, 1850.

M. Demarquay had a case (reported in the 'Edinburgh Medical Review,' Oct. 1867) of fibrous tumour occupying the antrum of a man æt. 53 years, in whom it had existed for 20 years. When removed, it was found to be lying quite loose in the antrum, and had set up suppuration around it. It had evidently become detached, in consequence of necrosis, due to pressure on its nutrient vessels resulting from its own growth.

(*To be continued.*)

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 527.)

On the Wisdom Tooth.

Perhaps there is no one tooth about which so much has been and may still be profitably written as the third molar, for there is no tooth probably that can set up so many varieties of irritation and in so many different forms. The development and eruption of the wisdom tooth long after the ordinary completion of secondary dentition gives it an individual claim to be considered separately, and under the various aspects of malposition, retarded eruption, pressure due to insufficient space, and consequent inflammation, much may be observed worthy of recording. Let us first, however, briefly recapitulate the conditions under which the wisdom tooth makes its appearance, and the results occasionally met with where this tooth cannot take up its proper position.

Dentition having proceeded to the eruption of the second molar, the maxillæ are now fully occupied, and a pause takes place. We wait for the elongation of the jaw backwards, in normal cases, from three to five years. If all be then favorable, another molar is added to the circle; but the eruption of this third molar is not generally unattended with pain. We have frequently a series of disturbances, the least of which is a certain amount of suffering to the patient, at times sufficiently distressing to call for professional attention; and upon examining more minutely the results, we perceive that the second molar standing in front, and the termination of the alveolus behind, the wisdom tooth not having a predecessor, and its development being carried on beneath the base of the coronoid process, when the time arrives for its eruption, it has no space reserved for it, and in the generality of instances it cannot take its place without a certain amount of suffering, more particularly in the lower jaw. It cannot be said in cases like this that the suffering is due to the malposition of the coming tooth; it is rather owing to the want of backward development in the jaw itself, and although during its eruption (frequently extending into months) the patient's sufferings are very great, if the tooth is not tightly wedged between the second molar and the end of the alveolus, and has only room to take up its proper position, all may end well, but sometimes this irritation is not limited to the part affected, it extends to the surrounding structures, causing the neighbouring muscles to become more or less rigid, and setting up inflammation, attended sometimes by suppuration, the pus not unfrequently burrowing around the periosteum of the jaw, giving very much the appearance of necrosed bone, and indeed, occasionally leading to necrosis of the jaw. Nor is this the only annoyance resulting from the attempted eruption of the third molar. Frequently the tooth takes a different direction, and remains buried in the alveolus, or even ascends the ramus of the jaw, or becomes impacted against the second molar. Such cases are occasionally met with, and the extraction of the offending tooth when it can be got at is the only treatment calculated to give relief. When the wisdom tooth takes for itself an horizontal position and remains below the alveolar margin, it may produce chronic abscess and fistulæ. A wisdom tooth so impacted came under my notice a short time ago, and although I have given the particulars elsewhere,* as the case very fairly illustrates the class of symptoms usually presented, it may be well to embody it in these notes.

On the 16th of February, 1874, I was visited by Mr. S. H. B—, æt. 43, a delicate and highly nervous gentleman, who complained of severe pain in the region of the inferior molars on the right side. He stated that he had suffered from a swelling in the sulcus between the cheek and the alveolus, which, after about ten days discharged pus; the opening then healing up. I made a careful examination of the mouth, but without discovering any traces of its past existence. The second bicuspid had been extracted, but the space was nearly filled up. Two molars were standing on this side, both perfectly sound, nor was there any indication of inflammation in the surrounding parts. One of the molars had a filling in the centre of the crown, but this was not likely to produce the symptoms complained of. The wisdom tooth, I observed, was absent, and I inquired whether at any time it had been extracted, but was assured that it had never been erupted. As the patient was much out of health I recommended that he should consult his medical adviser, and see me in a month or six weeks' time. In May, 1874, Mr. S. H. B— again called, having had a slight return of the symptoms, accompanied by a disagreeable taste in the mouth, the muscles becoming somewhat contracted. I again examined the mouth carefully, and found an opening opposite the second molar, from which pus was exuding, and a slight swelling at the angle of the

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* 'Trans. Odontological Society,' vol. viii, p. 211.

jaw. These symptoms pointed to necrosis, but the wisdom tooth being absent, I felt justified in suggesting the removal of the second molar, and making a search for the missing tooth. This, however, the patient was reluctant to consent to; it was therefore determined that he should pay Mr. Thomas Bryant a visit to ascertain whether there were any dead bone; but that gentleman was unable, without an operation, to give any opinion on the case, remarking that if the Dentist had not sent the patient to him, he should certainly have sent the patient to the Dentist; however, it was proposed that chloroform should be administered, and a thorough examination made of that side of the jaw. This visit was at first postponed, owing to family illness, and finally abandoned, the symptoms having subsided, the muscle recovering its normal elasticity, and the patient's health becoming much improved.

October 29th, 1875, I again saw this case. During the seventeen months that had intervened I had not had a visit from the patient; he informed me that during this period somewhere about the month of May, the abscess had once more returned; that this time it had broken externally, giving him great relief, and the cheek had healed up again; that he had been free from pain until the first week in September, when he went into the country for a holiday. Once more the old symptoms returned, the abscess again formed, broke internally, and in three places externally, the jaw becoming perfectly rigid. Mr. Barnett, of Leominster, where the patient was visiting at the time, was called in, and he administered ether, and made an examination of the jaw externally, but it seemed to all appearance healthy. The muscle was now so rigid that the mouth could only be opened about a quarter of an inch; but he managed to pass down a probe on the inside, and felt what I had all along believed to be the missing tooth buried behind the second molar. At the end of October the patient returned to London, and on the 29th, as I have said, he visited me. The mouth could now be opened about half an inch, and there was a fetid discharge both internally and externally, by three fistulous openings. I at once decided to remove the second molar, but this was a matter of no small difficulty, owing to the contraction of the muscle. Nitrous oxide gas was however administered, the mouth forcibly wedged open, and, assisted by my son and Mr. Gurnell Hammond (who happened to be accidentally in the house at the time), the tooth was turned over with a hawk's-bill forceps. A portion of the fang, however, was broken off, owing to the acuteness of angle at which it had to be extracted. The bleeding having subsided, and the patient sufficiently recovered, an examination of the mouth was made, and there the wisdom tooth was discovered lying horizontally below the level of the alveolar margin, its masticating surface being directed forwards and downwards, proving that it had been pressing against the fang of the second molar just removed. The patient was too much exhausted to submit to any further operation on this occasion; he was therefore directed to keep a plug of cotton-wool saturated with Condy's fluid over the tooth, to prevent the gum from healing over it, and another appointment was made for the 5th of November; but on this occasion he was found to be in too excited a state to be brought fairly under the influence of the nitrous oxide gas. An examination of the mouth was, however, made; the tooth could now be fairly seen, and it appeared to be trying to raise itself to a perpendicular position. The patient had suffered but little since the last operation, the inflammation had greatly subsided, and externally the cheek was fast healing. From the second week in September to the present date, November the 5th, he had not been able to open his mouth sufficiently wide to take any solid food; it was therefore decided to postpone any further operation for the present, and it was not until the end of the year the mouth could be opened wide enough to continue the operation with any chance of success.

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January 6th, 1876.—At length an appointment was made for this date, when Mr. Clover attended and administered ether and nitrous oxide gas. The tooth had by this time raised itself a little above the margin of the alveolus, and it was safely extracted, and also the piece of fang previously broken off the molar. The difficulty of removal will be more readily understood when the wisdom tooth is examined; for, growing at right angles to the fangs, is what appears to me to be an exostosed bony tumour, giving the appearance of a third fang, and owing to the position in which the tooth was placed adding considerably to the difficulties of extraction. It is to be regretted that the advice given in May 1874, was not taken, and the molar tooth then extracted, as much pain and anxiety would have been spared; it must also be borne in mind that the patient was of so nervous a temperament that even the most ordinary examination of the mouth could not be successfully performed unless he was placed under the influence of an anæsthetic.

February 18th.—All the disagreeable symptoms have now entirely subsided. Four small pieces of bone have come away, and the gum is gradually closing over. The fistulæ in the cheek have also healed, and the tannic acid and chlorate of potass mouth-wash he was directed to use has been discontinued.

(*To be continued.*)

ON THE EARLY REMOVAL OF THE SIX-YEAR-OLD MOLARS.

By David Fletcher, Esq.

Having read with much interest the various opinions expressed in your Journal by gentlemen of high standing and ability as to the best way of stopping decayed teeth, I hope you will allow me to say a few words on the teeth in general before the mouth has been subjected to the manipulation of the wonder-worker or the tinker, as the case may be.

The discussion may be compared with the question of the best way to construct rafts on which to escape from sinking ships, with but little regard to the safety or ultimate fate of the noble ship herself. Now, in order to obviate if possible the necessity of having to repair disabled or troublesome teeth, I am entirely of the same opinion as that of a gentleman whose name for the moment escapes me, but who advocates in your columns a short while ago the removal of the six-year-old molars, believing that such treatment would go a long way to secure a healthy mouth in the future.

I should like, however, to say a few words in addition to his argument, as I believe the subject to be of fundamental importance in the practice of Dentistry.

Since the introduction of forks at table in the time of Queen Elizabeth the teeth of our children have suffered from the lateral pressure consequent upon the disuse of the front and canine teeth, thereby inducing inflammation and caries, particularly in the first molars and bicuspids, the extraction of which I believe to be the only way to prevent further mischief; for, if allowed to remain, the whole mouth will become involved in like ruin.

During an experience of over thirty years I have invariably found after the extraction of first molars showing disease that all went on well, and that no other teeth were attacked, but, on the contrary, if retained by stopping, the adjoining teeth soon required stopping also, and in the end had to be extracted, proving, in regard to the usual mode of stopping, that it is bad generalship to stop at all unless the cause of the disturbance be first removed.

There are many people who take little pleasure in paying their debts, and must be compelled to do so by law, not on account of poverty, for such persons are often well-to-do, so with those possessed of first-rate sets of teeth, they more than their less favoured fellow-mortals, strongly object to losing one of their valuable teeth, and in the hope of avoiding what seems to them a frightful sacrifice, become the prey of some unprincipled advertising humbug who promises them anything they ask, well knowing that he is as safe from any act of Parliament, which is as impotent to protect his victim, as it would be by any kind of legislation to try to protect the public from the ignorance which exists within the ranks of even the medical profession itself all over the world. This remark may appear severe, but I have full faith that it will be endorsed by all who are the brilliant exceptions.

The removal of any unhealthy tooth after the age of seven or eight years, besides giving room to the teeth then coming, provides space at the back for the easy eruption of the wisdom teeth in years after, and no such distressing cases as those related by Mr. Weiss in your May number would be likely to occur.

The savage hunter, who tears his food with his canine tusks, has always a well-formed mouth and white and clean teeth; in fact, such a mode of eating is more conducive to cleanliness than any artificial method we could devise.

What a boon to mankind generally would it be if some leader of fashion were to modify the use of the fork at table. I can imagine those who think themselves possessed of more than ordinary refinement expressing their horror at any such barbarous innovation; but I feel certain that a person holding a morsel of meat between his forefinger and thumb and delicately shredding it little by little, and conveying it imperceptibly to his grinding teeth, is much more endurable to the beholder than it is to be obliged, as one often is, to sit opposite a person who conveys a quantity of food at once on his fork to his masticators, munching and rotating his jaws after the manner of an old ox.

There is something very disgusting, and, at the same time, unnatural in the manner of eating food at table. Some men, in a hurry to finish their meal, pitchfork their food off their plate as though their object was to empty their plate and not to supply nature. Regardless of consequences, they load their fork with meat, vegetables, pickles, and other condiments, gazing meanwhile stupidly at you whilst endeavouring to free their teeth from the heterogenous mass. By going back to the old plan antecedent to the introduction of forks we should at least have some use for the napkin and finger-glass, which under our present system are almost useless.

In thus writing I have endeavoured to point out some way, either by partially returning to primitive habits or by submitting to the extraction of the first or second molars or bicuspids, as the case may be, and thus prevent the lateral pressure which I believe to be the cause of so much suffering.

2, Wynyard Square, Sydney, N.S.W.

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

(*Continued from p.* 531.)

Vulcanite presents so many advantages for lower cases that it is almost universally used for this purpose in preference to any other material.

That part of the lower jaw which has to support the pressure of the plate is formed of the whole or parts of a curved ridge of nearly equal width, occupying a position below that from which the crowns of the natural teeth have been removed. The sides of this ridge, if the fangs of the teeth have also been removed and time elapsed sufficient for the absorption of the alveolar process, slope outwardly towards the lips and cheeks, inwardly towards the roots of the tongue, and downwards generally on both out and insides. The inclination of these sides to each other differs much in different individuals, varying from a good supporting surface nearly as round and broad as the back of a man's forefinger, to a thin ridge, presenting almost an edge, the base of which does not widen to more than a quarter of an inch before it is lost in the soft moveable lingual or buccal tissues, which are unavailable as a supporting base. Lower cases, therefore, have always much less supporting surface than upper ones where the same deficiency has to be filled with substitutes for the natural teeth, and they labour under the further disadvantage, as compared with uppers, that in addition to the force of mastication their own weight adds to the pressure.

The deficiency of supporting surface added to the more or less sloping position of the sides of the ridge gives the piece a tendency to sink a little after being a short time worn, and this sinking allows the edges to cut the mucous membrane, often producing ulcers or sores. Added to this inconvenience the moveable soft tissues, notably the frænum, often encroach further than has been anticipated, and the piece presses upon them unduly and in a manner which they will not tolerate. From these reasons it often happens that lower dentures have to be considerably eased by filing after they have been a short time worn, and it is always desirable to have thick round edges.

Almost the whole of a lower set lies beneath the free margin of the tongue where bulk is much less obnoxious to this organ than it is above; hence the advantage in point of thickness which a gold piece can claim over a vulcanite one is so much more than compensated for by the difference in the ease with which a comfortable fit is made, that on the true issues of the case I think vulcanite will generally be preferred.

Small lower pieces to replace several teeth, the blank spaces being separated by still remaining natural teeth, will be most advantageously made by being packed in rubber directly on the original model. In working in this way the difficulty lies always with the bite; and in such pieces, the natural teeth still remaining, generally readily and correctly indicate the bite with upper teeth, and when there are not more three or four teeth to be placed side by side in the rubber it is tolerably easy to get them in position.

Such cases of which the models represented several isolated natural teeth were particularly difficult to fit accurately when made by using first a wax piece, and then pressing rubber into the space occupied by the wax, after its removal, between the two halves of a flask; as under the best circumstances the plaster teeth were very apt to break on separating the halves of the flask to see if the right amount of rubber had been packed in, and the fit of the piece was thereby impaired.

Lower pieces carrying the molars and bicuspids, connected from side to side by a bar passing behind the front teeth, are generally kept in place by springs connected to an upper piece, or by clasps embracing the two posterior natural teeth, one on each side. In either case, after a little experience the piece may be packed at once on the models as the previous cases. A skeleton wax piece should be used in the first place, so as to get the strengthener and bands or swivels correctly adjusted, and the teeth let down to the bite before beginning to mount them in rubber.

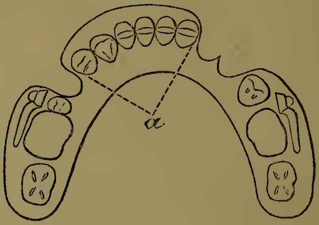
The next class of cases, where the front teeth are gone as well as the molars, leaving the canines and one or two bicuspids on each side, may also I think, with care, be packed at once in rubber; but when we come to mouths in which the lower jaw has but three teeth or less, or if, for special reasons, it is necessary to try the piece in the mouth first, it will be best to model it in wax first and pack in rubber after a matrix has been made in the ordinary way. Instead of setting this wax piece on the original model in the lower part of the flask, I think it is safer, avoiding the risk of accident, to use a tin cast. If there are any teeth standing on the model, these should be cut short before casting, or they may be filed short on the tin cast after it is poured, and a parting must be used of tissue paper or bookbinder's gold leaf; when very little difficulty will be found in separating the cooked piece from the model.

There are exceptional cases in which the advantages of packing on the model are so great as to compensate for the extra time and trouble of twice vulcanising; overcoming the difficulty of the bite the first time, and of fit the second. The following cases will illustrate this:

Mr. H— required a set, the upper to be kept up by springs, the lower jaw presenting the following conditions:—The second bicuspid and second molar remained on the left side, with about the width of a small bicuspid between them, giving room for the attachment of the swivel for the spring on that side; on the other side, the canine, first bicuspid, and first molar remained, the gap caused by the absence of the second bicuspid giving a similar convenience for the insertion of the swivel as was found on the other side. From a peculiarity in the bite of the upper teeth, of which some of the front natural ones remained, it was necessary to adjust a wax trial plate to the mouth in order to get a pleasing arrangement of the front teeth. In consequence of the isolated position and length of the natural teeth, this case would have presented some difficulty if made in the ordinary way, and it would have been almost impossible to have separated the parts of the flask after having pressed them together, if a plaster model were used; a perfect tin would have been difficult to cast, and still more difficult to remove from the vulcanised piece. It was therefore determined to pack it upon the model, which was done in the following manner.

A correct bite having been made with the trial plate on the model to be vulcanised upon, that part of the wax containing the incisors, left canine, and bicuspid (see fig. 25 *a*), was separated from the rest of the piece, and after reducing the size by paring away the wax on the outer and insides, made into a vulcanite block by itself; by sinking the teeth and upper surface of the wax in plaster in one half of a flask, and when set filling up the other half, so as to take the basal surface, separating the two parts of the flask, removing the wax and packing in the ordinary way. The block, after being lightly vulcanised, was roughly filed so as to leave only just enough rubber to hold the teeth together with light handling, taking care to cut it well away around the exposed margins of the teeth, so that fresh rubber could be easily packed to cover it entirely, and the basal surface reduced to a linear series of points, which enabled the block to be easily set in position on a thin layer of rubber on the model.

FIG. 25.

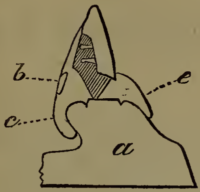


The part of model which it was intended to cover was then brushed over with the chloroform solution, and a layer of one thickness of vulcanite packed upon it. The rubber surface of the block, which was clean-rough filed, being also smeared with the solution, the block was adjusted to its position on the model by the bite. In doing this no difficulty was experienced; the remaining requisite quantity of rubber was then packed together with strengtheners, swivels, and solitary teeth on to the model, and the piece completed.

Mr. H— had a very peculiar mouth. A gold upper was made which kept up very well without springs; it was therefore desirable if possible to make a lower piece which could also be so worn. The only teeth remaining were a molar and bicuspid on the left side, having a small space between them. There were several fangs of teeth remaining, both in front and at the sides, and as these were healthy and it was known from experience that they were very firm and unusually long, it was determined to allow them to remain, merely reducing them all to a level surface with the file. The peculiarity of the mouth consisted in the great extent of the undercut of the ridge; the natural teeth when standing having had a considerable inclination backwards towards the centre of the mouth.

In consequence of this undercut, see Fig. 26 *a*, it would have been a matter of no small difficulty to have made a good fit in the ordinary way; and it was necessary, from peculiarities of expression, to try the teeth first in the mouth. The same method was therefore pursued as that described in the previous case. A block was made containing all the teeth inclusive from the first bicuspid on the left side to the second molar on the right. A gold band was fitted around the natural bicuspid; this was soldered to the strengthener, packed in the vulcanite together with the block, and the piece completed.

FIG. 26.



Section between the incisors of Mr. H—'s piece on the model.
a. Model, showing undercut. *b.* Gold strengthener. *cc.* Rubber of second cooking; shaded part, rubber of first cooking.

Whenever stumps have to be covered by a plate, packing on the model has many advantages. The usual way is very apt to abrade the sharp edges of the stumps; and although this may be remedied by filing the stump or sculpering away the vulcanite, the result is not so satisfactory as an exact fit; a little space is often left into which gum grows and becomes a source of irritation.

The perfection of fit which this method offers also allows us sometimes to meet the wishes of a patient who manifests an uncontrollable aversion to forceps or elevator.

Mr. B— wore a small gold piece supplying the right upper lateral and a bicuspid on either side. He had lost all the upper back teeth, and having a good set of lower teeth wished for some upper molars to meet them. The stumps of the first molars, however, which still remained, proved an obstacle; they were ragged and nearly half protruded from their sockets. Of course, it was determined to remove them; but appointments made for this purpose were avoided, and the matter shelved from year to year in hopes that the stumps would get loose and come out; unfortunately, they remained in the same condition. At last a model was taken and a vulcanite piece packed over them. This went into the mouth, fitting the stumps without any adjustment, and is perfectly comfortable.

(*To be continued.*)

Hospital Reports and Case-Book.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From September 1st to September 30th, 1876.

Extractions	Children under 14	487
	Adults	610
Under Nitrous Oxide		189
Gold Stoppings		132
White Foil ditto		29
Plastic ditto		169
Irregularities of the Teeth treated mechanically		13
Miscellaneous Cases		142
Advice Cases		133
	Total	1904

M. L. Bell,
Assistant Dental House-Surgeon.

A DENTAL HOSPITAL FOR DUBLIN.

A meeting of the Dentists who had previously made preliminary arrangements for the establishment of a Dental hospital in this city, was held yesterday in the Council Chamber of the Royal College of Surgeons, Ireland—W. B. Pearsall, Esq., F.R.C.S.I., Dental Surgeon, in the chair.

The minutes of the last meeting having been read and signed—

The hon. secretary, Mr. O'Duffy, stated that after considerable difficulty in obtaining suitable premises, he was happy to state that the house 10, Beresford Place was now in their hands, and required but a small outlay to fit it for the required purposes.

The Chairman congratulated the gentlemen who had been intrusted with the task of procuring a suitable house, and expressed his satisfaction at the advantages which the public would derive from having an establishment in which the suffering poor would be treated by gentlemen of long-established reputation as Dentists. He regretted, however, that owing to his holding an appointment, which occupied a considerable portion of time, he would be unable to act on the working staff, but he would at all times feel a deep interest in the welfare of the hospital, and afford any aid in his power.

The following officers were then elected :—

Consulting Physician—Thomas Hayden, Esq., Fellow and Vice-President of the King's and Queen's College of Physicians, and Physician to the Mater Misericordiæ Hospital.

Consulting Surgeon—Edward D. Mapother, M.D., Surgeon to St. Vincent's Hospital.

Dental Surgeons—M. J. Bloom, Esq.; Francis M'Clean, Esq., L.F.P. and S. Glasgow; John O'Duffy, Esq., M.O.S. Gt. Brit.; Frederic Ryding, L.D.S. London; Henry Sherlock, Esq., L.R.C.S.I.

Hon. Treasurer—J. H. Longford, Esq., M.O.S. Gt. Brit.

Hon. Secretary—John O'Duffy, Esq., M.O.S. Gt. Brit.

A vote of thanks was passed to the Council of the Royal College of Surgeons for their great kindness in granting permission to hold their preliminary meetings in the college.

After having transacted some routine business connected with the opening of the hospital, the meeting adjourned.—*The Dublin Freeman's Journal,* October 18th, 1876.

At a meeting subsequently held in the Dental Hospital, Beresford Place, the following names were added to the list of Consulting Physicians and Surgeons:

Henry Gray Croly, Esq., F.R.C.S.I., Senior Surgeon to the City of Dublin Hospital, Member of the Court of Surgical Examiners, Royal College of Surgeons; George M. Duffey, Esq., M.D., F.K.Q.C.P.I., Physician to Mercers' Hospital.

The hospital was opened on Wednesday, October 25th, 1876.

Opinions of the Dublin Press.

OUR public institutions having now for many years past been undergoing a process of gradual diminution in number, it is not a little gratifying to be able at length to announce an addition to them, especially when, as in the present instance, it is one that has been established for benevolent and philanthropic purposes. As will be seen in our advertising columns, a Dental Hospital has just been established in our city, under most favorable auspices, to meet a want long felt, particularly by those classes of the community whose resources are too scanty to obtain the advice and attendance of skilful members of the profession. Up to the present time a few of our leading Dentists only have devoted a portion of their leisure time at their own residences to gratuitous attendance on such of the humbler classes as required Dental treatment. But the time and attention thus given was necessarily brief and hurried, whilst the number of patients was exceedingly large, so that the greater portion being unable to find room in the interior of the premises, were either not attended to at all, or received such attendance as could be given under such circumstances outside, as a species of out-door Dental relief. As might have been expected, neither the profession nor the public derived any benefit from such a system. Again, when any patient applied for alleviation or cure of his ailment at any of our hospitals he was simply used as a subject to be experimented upon by medical students, the said student being generally a rural ESCULAPIUS, whose physical powers were made to serve as a substitute for professional skill; but the rustic SAMSON who thus became the successful operator, unfortunately too often left a wreck, in the shape of a shattered tooth behind, which generally caused infinitely more pain, agony, and torture than the original carious masticator. All this, it may be easily imagined, was moreover attended with a certain degree of humiliation to the patient, engendering the reverse of pleasurable feelings. It is hoped, however, that the institution which has now been inaugurated will effectually put an end to a system which had nothing to recommend and everything to condemn it. But the hospital which dates its establishment from today will make it obligatory and lay it down as a stringent point of duty on the part of its staff to devote a portion of their leisure, and employ their utmost professional skill on all occasions and under all circumstances to the careful and considerate treatment of the patients that may desire to avail themselves of the advantages which the new institution will offer. These judicious arrangements will, it cannot be doubted, be productive of far more beneficial results to the public than could possibly be expected from the past system. We have made these observations, not, of course, from our own personal experience of the Dental profession, but in consequence of the very encouraging opinion given in the August number of the 'British Journal of Dental Science," from which we regret being unable to give more than the following brief extract:

"The movement that is now taking place in Dublin in favour of of the establishment of a Dental Hospital is eminently worthy of attention and support. . . . But whilst we shall be pleased to note the establishment of legitimate Dental Hospitals, with schools attached, at some of our chief centres, we most earnestly deprecate the encouragement of little petty dispensaries, and sometimes so-called hospitals, got up for the benefit of individual Dentists, unsupported by colleagues practising his own speciality. . . . The founders of the Dental Hospital of Dublin have carefully avoided the error we have pointed out, therefore, we cordially wish a long and prosperous life to this, the first institution of its kind in Ireland."—*Saunders' News-letter and Daily Advertiser*, Oct. 25th, 1876.

OF the many alleviations of human suffering that science, backed by generous hearts, is yearly adding to the already long list of them, we know none that should sooner arrest sympathy than the movement now on trial in Dublin to open free to the suffering poor an hospital devoted specially to the treatment of diseases of the teeth and mouth. Medical men best know the incredible amount of small torture, and frequently the vital danger, laid at the door of the diseases now grappled with. They are all the more worthy of special treatment that in the mass of greater ills they are apt to be neglected or altogether overlooked. The hospital now entering on its career is officered by some of the first names on the medical roll of the metropolis, and is above all suspicion of descending to the glorification of any single surgeon. It looks boldly to public benevolence for its way of living; and we wish it a full measure of encouragement and success.—*Freeman's Journal*, Oct., 25th, 1876.

British Journal of Dental Science.

LONDON, NOVEMBER, 1876.

WITH the month of November commences a new session of the Odontological Society, and it may not be amiss to call the attention of its rulers to the fact that there is an ever increasing feeling of dissatisfaction at the small amount of good it seems to effect in proportion to the pretensions it appears to assume. We say "seems" and "appears" advisedly, for we are personally too well acquainted with the Society not to be well aware of all the material benefits it *has* conferred upon the profession, and the excellent moral influence it still exercises upon it; nevertheless we would earnestly advise its rulers not to shut their eyes to the fact that in the eyes of many, both within and without its pale, it "seems" to effect no good, and "appears" to act as an actual bar to progress. Conversaziones are excellent things in their way, especially when they are given on the Society's own premises, but they are not a sufficient substitute for energetic work in the way of providing for that intellectual entertainment which the Society is chiefly designed to supply, nor for the exercise of that decision and prompt action, free from all nervous irresolution and vacillation, which the spirit of the times demands from all rulers, great or small. It will not do for the Society to rest content with the material benefits it conferred upon the profession at its outset, nor for its rulers to be content to shine with the reflected light of their predecessors. If they wish the Society to continue to maintain its prestige they must be up and doing, and, following the example set them in former years, seek ever to initiate such reforms as the experience of successive years shows to be needed.

Many years ago an endeavour was made to insist upon the possession of the L.D.S. as a *sine quâ non* for all members of the Society. Is it not time now to bring about some such recognition of the Society's own child, seeing that another Society has come into existence which practically ignores the very existence of that special diploma.

Again, in view of recent occurrences, is it not time to revise and amend the laws respecting the admission of members; is it not possible to frame some regulations or adopt certain measures which should render the Society practically, and not merely in name, the Odontological Society of Great Britain (and why not add) and Ireland? Cannot some better arrangement be made than the present one for making the termination of the presidential year fall in the middle of the winter session?

We have touched upon these subjects before in our leading articles for June, 1875, and again in February, 1876, and we may yet recur to them and place them more at length before our readers; but, meanwhile, we would earnestly entreat the rulers of our old friend the Odontological Society not to remain asleep, like the boys in the school whose history is so quaintly given in a subsequent page, lest they find that other societies spring up around them, as they have already begun to do in this the most disastrous year in the annals of the Society, and thus destroy that strength which can only result from unity.

Dental News and Critical Reports.

ODONTO-CHIRURGICAL SOCIETY.

Ordinary Meeting, held at Glasgow, Sept. 12th, 1876.

David Hepburn, Esq., L.D.S., Vice-President, in the chair.

The minutes of the previous meeting having been read and approved of,

Messrs. R. Hooper and G. W. Watson, Edinburgh, were balloted for and duly elected members of the Society.

Before proceeding with the ordinary business the Chairman expressed in his own and in the name of the Society the pleasure which it gave them to see so many friends from a distance with them that day. He said he was aware they could only be present at a considerable amount of self-sacrifice, and he felt their presence to be the highest testimony they could give of their interest in the Odonto-Chirurgical Society and their desire for the advancement of the profession. He only regretted that their President was not there to welcome them, but he trusted they would accept the thanks of the Society, which he had the pleasure to tender in its name. He had received communications from Mr. Wood, Brighton, Mr. Turner, London, and other gentlemen who had intended being with them, but who had had, from professional or other engagements, to leave Glasgow before their meeting, it having been held at a later date than they anticipated.

A telegram from Mr. O'Duffy, Dublin, and a note from Dr. Orphoot, expressing their regret at being unable to be present, was then read, the latter stating that he hoped to exhibit his saliva guard better developed at their next meeting.

The CHAIRMAN then said there were two papers down for discussion in the billet, one by Mr. Kyan, the other by Mr. Campbell. As the latter of these contained only part of the subject treated, and the author had promised them the concluding portion of the paper for their next meeting, it had been decided to delay its discussion until the whole subject had been brought before them. In reference to Mr. Kyan's paper, "On the Uses to which Stent's and Hind's Compositions might be Applied," he thought they must all be conversant, more or less, with most of the purposes named in the paper. He made use of it almost invariably for taking impressions, preferring it to either wax or plaster for most cases; he also made use of it for taking bites, for which he thought it admirably adapted. In doing so put a thick layer of wax and resin on the surface, which readily yielded to the natural closure of the jaw, leaving a correct impression of the opposing teeth or case on its surface.

Mr. HILL (London) said he had found it very advantageous in highly arched palates to take the impression with composition, moving it about so as to give a rather roomy impression, then after cooling lining it with a layer of beeswax, and while that was plastic pressing it back into its place in the mouth again.

Mr. WILSON said that if Mr. Hill were to substitute plaster for the layer of beeswax he would really get an accurate impression, not a mere approach to one. There was more trouble with plaster than with composition, but it gave infinitely more satisfactory results. As a simple means of testing the two he would recommend members taking the impression of a perfectly flat surface, say a piece of plate glass, with each carefully, and to compare the results.

Mr. Williamson thoroughly concurred in the remarks just made. Composition was very valuable for many purposes, but taking accurate impressions was not one of them.

Short remarks having been made by several members,

The Secretary then read a paper, by Mr. Bridgman, L.D.S., Norwich, on "Honeycomb Teeth, a phase of Ordinary Decay."

Mr. President and Gentlemen,—The honeycombed state of children's front teeth is a circumstance respecting which we have hitherto had, in the place of actual observation, nothing more than mere theoretical speculation; and hence, it is not surprising that we should have so long remained in ignorance of the real facts of the occurrence. It has commonly been attributed to *imperfect* or *defective* formation during the process of growth; but this turns out to be altogether a mistake, and that it is such admits of very easy confirmation.

The earliest record we appear to have of this particular condition of the enamel, with any degree of minuteness, is to be found in Mr. Tomes's lectures which were published in 1848, and wherein, at p. 218, it is thus described:—"The defects in the enamel," says the author, "are of several kinds—defects in *quantity*, defects in *quality*, and defects in both *quantity* and *quality*.

"In many teeth the defect in quantity is sufficiently apparent—the enamel is irregular on the surface—full of small holes, giving to the teeth a honeycombed appearance. In the depressions there is scarcely any enamel, and on the prominences it rarely equals the normal thickness.

"It seldom happens that the whole crown of the tooth is so misformed; more commonly the irregularity occupies a horizontal line near the masticating surface, and the masticating surface itself.

"It is rare to find one surface of a tooth alone affected, or one tooth only. Generally, the defective enamel encircles the tooth in a horizontal line, and is equal in extent in those parts of the teeth that are formed at a corresponding time. From this latter circumstance, it is pretty evident," says Mr. Tomes, "that the defect had a constitutional origin, and that it arose from a temporary condition; for had the cause been local, one tooth, instead of all that were forming, would have been affected; and had it been permanent, the whole of the enamel investing the crown would have been equally imperfect. It would appear, however, that when once the development in a particular part has been interrupted, that that part does not again resume its normal condition, otherwise we should not find deep pits, with intervening parts of well-developed enamel.' "

The preceding description conveys a very accurate picture of the appearances. The inferences, however, are open to question; but it is further observed, that "on inquiry it will frequently be found that your patient suffered from ill-health *about the time the development of enamel was going on.*"* To this it may also be observed that in very many cases not a single day's illness nor any constitutional disturbance ever occurred sufficient to be recollected, but then as the period of enamel-formation is both uncertain in its commencement as well as in its duration, it affords a wide scope; and as it seemed the only obvious explanation able to account for it, it became accepted as an established fact, and, I believe, it has never before been doubted, or even suspected that it was possible for it to arise in any other way, and probably it would have continued to be so believed had it not been for an observed occurrence which proved its incorrectness and gave to it a very different complexion.

The occurrence in question was this. A lady came to me with her little daughter "on account of her front teeth coming without any enamel." On examination it was found that the two upper centrals had protruded about a sixteenth of an inch, and were entirely destitute of enamel on the exposed portion and having the dentine softened and brown, *but on lifting away the free edge of the gum it was seen that the enamel beyond was well developed and perfect quite up to the edge becoming exposed,* and which was pointed out to and seen by the parent, with the assurance given that ultimately the blemish would be very slight and of scarcely any importance, and with this consolation they took their departure and were not seen or heard of for some little time; but on their next visit it was with no little astonishment we were met with the following announcement, that "the enamel, which on the former occasion we had seen to be perfect under the gum, had all disappeared as the teeth grew; they continued to lose their enamel as they came further out of the gum, or, in other words, the enamel seemed as if it was eaten away directly it reached the surface."

On referring to the mouth all this proved to be strictly true; for this time the teeth were nearly half exposed, and all the visible portion was entirely devoid of enamel, and was discoloured and irrevocably destroyed.

Now, in this proceeding there are two very significant facts entirely disproving the hitherto accepted theory of imperfect formation, and which require special consideration. In the first place the enamel having been seen to have been perfectly developed and to have been afterwards destroyed completely upsets the idea of defective growth; and in the next place, the enamel not being corroded until it reaches the atmosphere clearly indicates some physical condition or action in which the latter plays an important part. To adopt the usual off-hand way of looking at such matters, it might be met with the very general bugbear of "acidity," and the assertion that it had been eaten off by the *acid secretions* of the mouth! This, however, may be summarily disposed of by the fact, even were such a result within the bounds of possibility, that were the cause as imagined—namely, an acid solvent in the mouth—uniform action would take place and all the teeth alike would be acted upon, which is not the case. On the other hand, when Mr. Tomes suggests that it must have a constitutional origin and not a local one, this is hardly borne out by the fact, because it has in reality both one and the other—the constitutional origin of a local affection.

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* Italics my own.—W. K. B.

That it is not simply "chemical action" exerted by the fluids of the mouth is sufficiently obvious by the fact of the action being restricted almost exclusively to those teeth and those portions of the teeth that are immediately opposite to the opening of the lips, namely, from the cuspid on one side to the cuspid on the other,—the bicuspids and tricuspids being rarely affected, although the grinding surface of the first permanent molar is not infrequently attacked.

The next point for consideration will be to learn what is the precise action which is thus engendered by the partial exposure of a wet substance to the atmosphere.

Starting with the assumption that there is no normal chemical affinity between the enamel and the secretions of the mouth sufficient to cause chemical action, two other substances, copper and sulphuric acid, were chosen for the same negative reason, that they had no normal chemical affinity for each other. This fact was put to the proof by a piece of copper wire remaining at the bottom of a vial containing dilute sulphuric acid (1 to 10) for upwards of three years (until destroyed by accident), as represented at Fig. 1 of the diagram, without the slightest trace of action being detected, and while the acid retained its entire freedom from colour as at first.

In the opposite portion of the diagram, Fig. 2, is shown the position of another portion of the same wire in an equal quantity of the same dilute acid; only in this case the wire was of greater length so as to be *part in the acid* and *part exposed to the atmosphere.* After a few weeks' action, undisturbed, the lower portion of the upper exposed part became covered with a coating of brilliant blue crystals of sulphate of copper (as shown in the specimen occupying the centre of the accompanying case), and after this encrustation had been washed away the wire presented the corroded appearance represented in Fig. 3, which is a portrait of the actual piece of wire forwarded with this for comparison, and by which to identify the proceeding. Now, in both the tooth and the wire in Fig. 1 *whilst submerged* no action occurs, but in both *when exposed to the atmosphere* corrosion is effected. Let us next inquire as to what is the precise action by which it is accomplished. If two magnets be suspended so as to be free to move, the north pole of one will attract the south pole of the other, but each north or south pole will repel its like. This selective power is the result of the polar condition, and it is this same polar condition which regulates the combining of substances by chemical affinity; in fact, chemical affinity and electro-polar attraction are identical, and hence electric attraction can supply chemical affinity where the latter may be normally absent. Thus, the placing the copper wire in two different media at the same time renders it polar and thus makes it attractive of oxygen by that part of the metal which is oppositely electric to itself. But the copper has not been dissolved *in the acid,* but at a point above the level of its surface. It is a law in electric attraction that fluids always go to the negative, and as the upper part of the wire is negative the acid ascends, and in its journey upwards dissolves the oxide which the oxygen has already oxidised for it, and when saturated deposits itself as a crystalline sulphate of copper at the limit of its ascent. In this proceeding

Fig 1

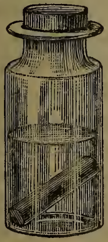


Fig 3

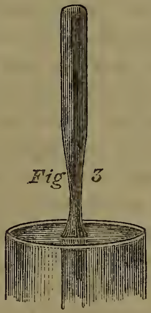
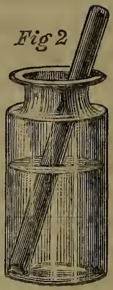


Fig 2



we have not only the chemical action in the dissolving and crystallising, but we have the selective attraction of the electric polarity transferring the combined salt to another locality; for while a positive attracts oxygen, a negative attracts the neutral salt it gives rise to. Thus, whilst ordinary chemical action leaves the result where the combination has taken place, electro-chemical combination transfers the result in an opposite direction. It may be here stated that this is the actual mode in which tartar forms upon the teeth in the mouth, and which is corroborated by the specimens now sent.

In attributing the honeycombing process in the child's teeth to this combined action of the air and the fluids of the mouth, the very obvious objection that must occur to every one is this,—Why then are not all teeth invariably and universally so affected? or why does it occur in some mouths and not in others? Fortunately the answer to this is very simple and will be readily comprehended.

It may be objected that there is neither sulphuric nor any other free acid in the mouth capable of dissolving the enamel; this, however, is not a necessary condition. Let a portion of common table salt—the *sodium chloride*—be substituted for the dilute sulphuric acid in the preceding experiment, Fig. 2, precisely the same action will take place, only it will be at a slower rate and with a different resulting product. The salt will be electrically decomposed and the acid set free for the instant, and the soda of the salt attracted away from it. This action was named by Faraday "*electrolysis*," or the loosening or undoing by electricity. In this proceeding there are certain laws that are invariable and without exception, and which require to be clearly comprehended and always kept in mind; as they constitute the basis upon which many explanations wholly depend.

In electrolysis water is always present as an electrolyte, and in being decomposed its elements are drawn to the different poles; thus oxygen is invariably attracted to the positive, while hydrogen goes to the negative, and hence, wherever a surface shows an acid secretion, we are informed by that fact that it is electro-*positive*, and wherever a surface becomes coated with an alkaline or neutral deposit that it is electro-*negative*. These are laws that are never departed from. Then, with regard to oxygen: the part played by this agent in the economy of life does not appear to have been rightly understood for want of a proper key to its actions; but this clue is now furnished by the polarisation here under consideration. By combination with oxygen not only are the *metals* made soluble, but *carbon*, the basis of the material of all organic bodies, is equally so; from this solution is formed albumen, which is the liquid food of living beings, and which is carried in this soluble form to all parts of the individual, and having reached its destination, it then by a reversed action parts with the oxygen and becomes again insoluble, having been "electrotyped" into the "formed material" of the being. The oxygen is thus only a vehicle or carrier of carbon, &c., in the process of growth first, and then by a reversed action performs the same office in the subsequent wasting and decay. The oxygen so employed is derived from the atmosphere, and this office may be deemed its especial function; but the oxygen entering into the composition of bodies is derived from the elements of water, and it is noteworthy that its equivalent proportion of hydrogen—its copartner—is almost invariably one of the other constituents accompanying it in the combination; hence the oxygen of the atmosphere and the oxygen derived from water have two separate destinations.

In my prize essay "On the Pathology of Dental Caries" it was demonstrated that by electrolysis all the phenomena of decay were produced; a piece of ivory, placed under the electrodes of a small voltaic battery, was decalcified and rendered acid just as it is in the tooth, and the negative pole became encrusted with lime in the same way that a decaying tooth often becomes coated with tartar. Now, by reversing the current and changing the electrodes, making that negative which was at first positive, and that positive which was negative, the lime left the original negative electrode and made its appearance at that which was then negative, so that it can thus be driven from one to the other by a mere differentiation or changing of the direction of the current. Then, again, it was found by decalcifying a piece of ivory in albumen (white of egg) that the albumen was consolidated into a transverse wall of indurated insoluble membranous-looking substance, *densely charged with lime globules, giving it quite a bony hardness.* This may very fairly be inferred to represent the action which goes on in the growing process of the tooth in the mouth; as by *the differentiation* it readily accounts for the subsequent removal of the roots of the temporary teeth at the period of second dentition. In the temporary teeth the root is scarcely completed when the process of formation becomes reversed, and the tooth begins to "ungrow," and finally disappears by its lime passing away altogether, and the basement membrane returning to its former state and becoming merged into the surrounding tissue.

With reference, now, to the "honeycombing" process, let the attention be particularly directed to what must necessarily be the condition of the portion of surface-gum from which the remaining shell of the crown of a temporary tooth has just been dislodged.

It will be a mass of vascular tissue that has just been concerned in absorbing or destroying the characteristic structure of the dentine. It will be tenanted by vessels that have been giving out a fluid which has been instrumental in dissolving and carrying away the lime, or, in other words, in decalcifying the dentine. Now, it will be at once recognised that it is at this very spot and through this vascular mass that the new tooth has to make its passage; and so long as this decalcifying condition shall continue to be possessed by the tissue, the emerging tooth directly it reaches the surface necessarily becomes the victim of the destroying process. But we now come to another stage in the operation. The vascular tissue, coming to the surface after having performed its destined function, is subsequently differentiated into or gives place to the mucous membrane of the gum; and it is only in the interval that elapses before this normal and protective covering has been acquired that the absorbing fluid continues to be secreted and the honeycombing process is effected. We may thus understand that the destruction may embrace every portion of the tooth extruded, or it may exist only in small specks of tissue, and thus give rise to the restricted action which produces only the minute pits or furrows, or it may cease and then reappear for a time; but it must be observed that, while the action was confined within the jaw, the process was complete of itself; but here, externally, the fluid is secreted and the rest of the effect is derived from the electro-polarisation of the atmosphere, and hence much will also depend on the conformation of the lips and the extent to which the parts may be exposed to the atmosphere.

To the recurring action which, after having ceased, a reproduction of the honeycombing arises, we have now to look for a solution of one of the greatest difficulties connected with decay, which all former explanations have failed to solve, namely, how is it originated? It must be kept in mind that in the mouth we have two distinct fluids, namely, the saliva from the salivary glands, and which furnishes the lime in tartar deposits, and the mucus secreted from the mucous membrane lining the interior of the oval cavity, neither of which, however, appears to be concerned in decay.

In the absorption of the temporary tooth *the absorbing process commences on the outer side of the root some little way above the apex,* and having reached through to the shaft of the pulp, the vessels of the latter then join in the action, and absorb the tooth from its inside. The vessels commencing the action, be it observed, will be situate within the cancellous tissue of the maxillary bone, and as these vessels "crop out" through the foramina in the septa, they supply the septal wedges of gum directly above them, and it is to the healthiness or unhealthiness of these portions of gum at the necks and between the teeth that we have to look for that secretion which can act as the decalcifier of the tooth. Again, as the tooth pulp is a metamorphosed papilla of the skin, and endowed with vessels that *do* act as decalcifiers in the absorption of the temporary tooth, we may reasonably infer that its vessels are liable to such a vitiated action as may *determine* or *localise* the disposition to decay, and this more especially with the immature teeth of the growing mouth during and for some time after the shedding of the first set.

We speak of dental decay in the singular, yet it in reality comprises two different and distinct processes, one pertaining to the organic basis or membrane of the dentine, the other to its decalcification and acidification. The first is simply a decomposing action by which the oxygen and hydrogen escape and leave the carbon more or less perfect as charcoal, and is known to chemists by the term "Eremacausis" or slow combustion. The other is strictly an electro-polar separation of the lime from the organic basis and the acidification of the decalcified tissue, and is a far more rapid process than the former.

It has often been remarked that "approximal" decay commences, *not where the teeth touch each other,* but immediately below the parts in contact. The moisture being held, by capillary attraction, between the teeth, this position will correspond with the neck of the wire in Fig. 3, and oxidation and solution occur; but where the teeth touch each other, the parts in contact will be excluded from the air and so be screened from its effects. Occurring at the neck and outer side of the molars, it will arise directly above the edge of the gum, which forms a groove or channel where the moisture is retained, and nearly always, if not entirely so, it will be seen that the neighbouring gum has a glassy abnormal appearance and far from healthy. This condition may be brought about by a rough portion of tartar beneath the edge of the gum, or it may arise from the rough and broken edges of a decayed cavity or stump, and it may likewise be induced by the rough surface of unsuitable material of a neck-filling; but to all these we may with certain success avail ourselves of the maxim "remove the cause and the effect will cease." There is, however, a very large proportion of cases in which the immediate source of the irritation will not be so obviously apparent, and in which more general treatment will have to be adopted; but here again in almost every instance they will be found amenable to treatment.

In its place among the tissues the crown of the tooth is unquestionably *metamorphosed skin.* The papilla, upon which and by whom it was formed, still holds its position as the internal pulp. The dentine is an exaggeration of the basement membrane rendered hard by a subsequent deposit of lime, while the enamel is the crystallised epithelium equally calcified and extended over it from its junction with the epithelium at the neck of the tooth. By this, considering the teeth as a part of the dermal tissue, their treatment becomes far more certain than when they were supposed to be related to the bones or were even looked upon as anomalous productions. The epithelial surface of the gum being constantly giving off its scales, just as the epidermis casts off its scarf skin or "scurf," it by this wasting away proclaims its electric condition to be *positive*, and hence oxidation or the formation of acid is a normal office, so that when we attempt to correct this acidity by means of an alkaline salt of soda or potash it is subverting its natural order and merely tampering with effects instead of endeavouring to lessen excessive action as the "cause" of any undue amount of acidity produced. It has been my experience that the simplest and most certain way of accomplishing it may be most readily effected through the agency of tooth powder and tooth tinctures to be applied with the brush, and, in fact, my own success through these means has been such as to render it a serious question whether the professional apathy on this point is to be justified. Since the "camphor" mania of more than thirty years ago the serious and extensive mischief inflicted by its reckless use led me to narrowly watch the effect of the various nostrums and dentifrices commonly used, and I regret having to add with no very favorable result. It is painfully annoying to find the successful efforts of months of watching and thoughtful treatment directly afterwards destroyed in a few days by the inconsiderate use of some favoured or vaunted preparation of the day, and I hold that inasmuch as it is our duty to do the best we can for our patients, and having done so as far as our professional aid can go, it is equally our duty, as well as to our own interests, that we should provide them with the means of rendering those advantages as permanent as possible, and there is no surer way than by supplying them with such preparations as will help to maintain the course which has been pursued. It is not sufficient *"to advise,"* the means must be placed in their actual possession, and then there may be some chance of its being had recourse to as directed.

Appendix.—The theory of decay advocated in this paper is founded on the fact of certain substances, when placed in two different media, as partly in water and partly exposed to the atmosphere, becoming *"electro-polar,"* and thereby being made to attract oxygen at one part and to repel it at another, and consequently being decomposed by the oxidation. It is thus a strictly *"electro-chemical"* proceeding, that is, the chemical change in the process is initiated and controlled by the electric condition generated through the particular arrangement of the substances, the solid and the liquid.

It is not improbable that it may be desired to learn something more of this atmospheric electro-polarisation, and that reference may be made to some of the more recent works on chemistry and other branches of physical science with that view, but it will be wholly useless, for no such notice has yet been taken of it, and the only record will be found in the accompanying paper which appeared in the 'Philosophical Magazine' for November, 1869, where the discovery has been made available for completing the labours of Faraday in deciding the *source* of power in the voltaic battery.

That this polarisation was unknown to Faraday we have his own unqualified and most clearly expressed assertion, that when a plate of amalgamated zinc is dipped into dilute sulphuric acid there is not sufficient affinity to cause the oxidation of the metal, and that with the two plates of a battery there is no action whatever unless the metals be made to communicate with each other, and with amalgamated zinc it "ceases to act or be *acted upon* by the acid *the instant the communication is broken.*"

By these statements the first polar condition of the zinc is wholly ignored, but only so by its not being suspected, or there not having been any cause to imagine such an occurrence to exist.

That the assumption of *"no effect upon the zinc"* is unfounded is fully established by the accompanying rod of pure zinc, which on being placed similarly to the wire in fig. 2 lost upwards of two grains in forty-eight hours.

That posts and rails rot off above the surface of the ground, and that metals are corroded at the water-line, are facts which have been known from time immemorial, but the reason has been but little thought about, and the common explanation which, without thinking, still seems to suffice, will be understood from the following dialogue which occurred some time since. On presenting the previously named paper for insertion in the 'Philosophical Magazine' to the late Professor Matthieson, who was then acting as temporary editor, he at once observed on seeing the diagrams, "*Oh, yes, we have been familiar with this all our lives.*"

"Of course we have," I replied, adding, "but how do you interpret it?" Now mark the reply, "*It is merely the oxygen of the air attacking the metal and rendering it soluble in the acid.*"

To this I observed that, "Granting it to be as stated, do you not see what that implies?" His answer was, "*No, I do not understand you, I don't know what you mean.*"

What I mean then is this—"that for the oxygen of the air to have *the power to select* for its attacks one part of the metal in preference to another, it must have a free will of its own to enable it to make the choice; or else, what is more to the purpose, it must *be acting under some definite law* which compels its obedience." To this he exclaimed, with a start of surprise, "THAT NEVER STRUCK ME; I NEVER SAW IT IN THAT LIGHT BEFORE!"

And after asking for and hearing my explanation, his observation was, that "it was very beautiful and a most important fact, as it gave us a key to the understanding of a vast number of occurrences respecting which we were quite in the dark."

At the time of my prize essay being sent in I had succeeded in demonstrating all the features of decay to be producible by voltaic agency, but it was not then known what were nature's arrangements for accomplishing the same ends *in the mouth*, and not for several years afterwards when it was revealed by accident—a ligature of silk twist had produced a groove in the enamel, and was itself encrusted with crystalline lime-salts. This occurrence I immediately recognised as an electric transfer and at once set about its investigation, ultimately producing the specimens now present. In Fig. 4 of the series there will be seen a deep indentation on the face of the tooth where the knot had rested, and which was placed at the water-line formed by capillary attraction when the tooth was suspended up to its neck in the acid. Now, as silk-twist had been used in innumerable instances without any such result having occurred, it was a clear indication that some special conditions existed with reference to the secretions, and this experiment repeated with the metals and various fluids led to the discovery of the polarisation, which was the first step in the movement, after which all the rest became perfectly clear and intelligible.

If we look at Fig. 2 and then consider the anatomy and structure of the hair and its surroundings we cannot fail to see the perfectly identical position in which both are placed, and if chemical action occur in the one it can hardly be denied to the other, the only legitimate inference being that the initiating action of life begins thus with *the chemistry of the skin.* But then all vegetation and the chemistry of the surface of the earth are equally bound by the same influences; in fact, it is one grand step in nature's panorama which is universally applicable. While, however, it shows us what must take place at the oxidating surface of the skin, it equally shows us what cannot possibly take place at the lungs, and that the present theory of the chemistry of breathing is altogether "a myth," and wholly untenable.

But by very far the most important teaching is, that it not only makes us acquainted with the "how," but in so doing it points out *a principle* that applies not merely to life in its healthy action, but to *the abnormal* conditions which we recognise as *disorder* and *disease,* at the same time that it indicates the direction in which the antidote is to be found; and when it comes to be understood and duly appreciated by the chemist, the physicist, and the physiologist, and it *must* be recognised by them sooner or later, it will tend to clear away the fogs and mistiness which now prevail. But, like the nitrous oxide gas which was suggested by Davy, its discoverer, for painless surgery, as long back as the beginning of the present century, this discovery may bide its time; but as *our profession* has the honour and credit of its first appliance, let it not be forgotten that, whatever honour and glory may ultimately attach, our own branch of the medical profession have been the pioneers in this case as well as with the gas.

At the conclusion of the paper the CHAIRMAN said that they must all have listened, as he had done, with the deepest interest to the very elaborate and highly scientific paper they had just heard—a paper he thought remarkable alike for the originality of the views its author sought to propound as for the clearness with which the experiments were explained by which he sought to elucidate his theory. Whether that theory could be established he would not presume to say, but he certainly thought some of the arguments and facts narrated were of a very striking character. He thought it fortunate that they were not called upon to discuss so difficult a subject until their next meeting, by which time members will have had the opportunity of carefully reading it in the 'Transactions' of the Society. Meanwhile he would be glad to hear any remarks from the strangers present, or from such members as were not likely to be present at their next meeting. He thought they were much indebted to Mr. Bridgman for placing so able and valuable a paper at the disposal of the Society, and to their worthy Secretary for the clear and distinct manner in which he had read it. Mr. Bridgman might rest satisfied the paper had lost nothing in his hands.

Mr. R. HEPBURN (London), stated he was quite certain that every one present would most heartily agree with the eulogiums which their chairman had just passed on the paper. For his part he had no hesitation in saying that he thought it one of the best contributions to Dental literature which he had had the pleasure of listening to for a considerable time past. The peculiar abnormal condition of the teeth so scientifically and minutely described, and the theories brought forward, would no doubt form the basis of a most interesting and useful discussion hereafter; in the meantime as members of the Odonto-Chirurgical Society, they were deeply indebted to the author for bringing such an elaborate paper before them, and he had the greatest possible pleasure in proposing a cordial vote of thanks to Mr. Bridgman.

Mr. WILSON in seconding it said that, while accepting Mr. Bridgman's theory as to a large extent accounting for decay, he did not think that it did so for honeycombing, and would like very much if those members who had access to any good craniological collection would see whether specimens showing honeycombing in non-erupted teeth were not producible. Judging from the frequency of the deformity, there should be no difficulty in finding cases if it was the result of constitutional disturbance, as generally believed.

The Secretary was instructed to convey the thanks of the Society to Mr. Bridgman.

A collection of Dental novelties, sent by the Dental Manufacturing Company, including Mori's patent heat regulator, the Company's dental chair and bracket, &c., were then exhibited and explained by Mr. Crapper, assisted by Mr. Howell, and the thanks of the Society voted to the Company.

The CHAIRMAN then announced that their next meeting would be held in Edinburgh in November.

The members and friends afterwards dined in the Bedford Hotel.

DENTAL STUDENTS' SOCIETY.

ORDINARY MEETING, HELD OCTOBER 9TH, 1876.

DAVID HEPBURN, Esq., L.D.S., President, in the Chair.

THE minutes of previous meeting having been read and confirmed, Mr. Lucas was balloted for and duly elected a member, and Messrs. Atwood, Bell, Bruce, Burt, Cook, Dudley, Field, Fothergill, Galpin, Hepburn, Keen, Morison, Newton, Power, Ridge, Rock, Stevenson, Turner, Weiss, Whatford, were proposed as members of the Society.

Mr. G. H. HARDING, L.D.S., showed some very interesting specimens of abnormal teeth.

The PRESIDENT showed a very fine specimen of polypus of the pulp, and then called on Mr. MATHESON for his paper on "Necrosis of the Jaws and Teeth."

Mr. PRESIDENT and GENTLEMEN,—My only excuse for addressing you on a subject of which I know nothing by practical experience, is that it was pointed out to me as one which had not yet been brought before your notice in any paper read before this Society. Feeling that it was a subject of considerable interest, and one of no small importance, I have ventured to write this paper, the only originality of which, however, consists in the collection and synopsis of the various accounts given and opinions held by the principal authorities on the subject.

I shall treat necrosis of the jaws and necrosis of the teeth as separate subjects, for though they are closely connected, and though generally speaking the disease is the same thing in both, yet its appearance, progress, and ultimate results must necessarily be somewhat different, when different tissues are involved.

What then is meant by the term NECROSIS, AS APPLIED TO BONE? In its widest sense, it implies simply death; but it has come specially to mean that particular form of death which occurs more or less suddenly, so that the whole portion of bone affected loses its vitality at once, its continuity being left intact. The dead bone therefore presents very much the appearance of ordinary bone deprived of its organic constituents, as opposed to the disintegrated condition found after death from severe inflammation, caries being the term applied here.

Practically, there are two forms of the disease, namely:

1. True necrosis.
2. Exfoliation.

True necrosis is said to take place, when by reason of the stoppage of the circulation in a bone or part of a bone, the latter, as a whole loses its vitality, and is replaced by new bony structure, which is developed before the dead part is thrown off, and which in the course of its development, partially or wholly surrounds the dead part.

Exfoliation is the term applied to that form of necrosis in which there is no bony repair of the lost part, at all events until after the latter has been thrown off. The appearance or non-appearance of new tissue depends more upon the locality of the disease than upon its causes.

The *causes* of necrosis of the maxillary bones are numerous, and are for the most part identical with those of periostitis, the acute form of which is in the majority of cases the immediate cause of the death of the bone. I say in the majority of cases, for under certain conditions, and as the result of certain causes, periostitis is made impossible as a precursor of necrosis. Periostitis may follow mechanical injury, or acute inflammation of the tooth-pulp, or it may arise from the presence of a necrosed tooth, or from local irritation produced by the eruption of teeth; or it may occur as a consequence of stomatitis, cancrum oris, or indeed of any acute inflammation of the soft tissues surrounding the bone. It may be caused too, by acute suppurative inflammation of bone itself, which may be idiopathic or the result of local irritation in the presence of constitutional frailty. Other potent causes, resulting in periostitis and subsequently necrosis, are found in the specific action of certain poisons, namely those of the eruptive fevers, of syphilis, of phosphorus, of mercury, and (very rarely) of continued fevers.

But the supervention of periostitis is not absolutely necessary to the production of necrosed bone, for the latter may be directly produced by other causes, which produce the same effect, namely, the cessation of circulation in the bone. Thus the application of caustics under certain conditlons, deep burns, and mechanical injury of certain kinds, obviate the possibility of periostitis by the sudden removal of the periosteum and exposure of the bone.

Although in nearly every case, one of the above causes may be assigned as the source of the disease, yet necrosis, like other abnormal conditions, may occur without any obvious cause.

Mechanical injury may occur in the form of a blow, which apart from any fracture of bone, may produce very acute periostitis. Or the injury may be of such a nature as to tear away the soft parts surrounding the bone, leaving the latter exposed, and deprived of one of its chief sources of nourishment.

Inflammation of the alveolar periosteum may be simply the extension of inflammation having its original seat in the pulp of a tooth; or it may be set up by the irritation consequent on the presence of a dead body in the shape of a necrosed tooth.

Continuous pressure on the periosteum, caused, for example, by the use in mastication of an abnormally long tooth produces inflammation of that tissue.

When presenting itself as a sequence of inflammatory affections of neighbouring tissues, the immediate cause of periostitis lies probably in the reception into its vessels of purulent matter, or the deposition of such in its immediate neighbourhood.

Necrosis may follow periostitis, due to suppurative inflammation of another part of the bone. For example, a ring of ulceration may occur on the surface of a bone, giving rise to irritation of the superjacent periosteum, between which and the bone exudation takes place, ending in necrosis of the originally healthy bone enclosed in the circle of ulceration.

Syphilis not unfrequently produces death of bone, as a result of the separation of the latter from its periosteum by purulent degeneration of syphilitic effusion. Severe periostitis of the jaw followed by extensive necrosis, is one of the effects of mercurial poisoning, seen now, however, comparatively rarely as compared with the days when mercury was continually given with the avowed purpose of producing salivation.

The three principal eruptive fevers, scarlet fever, measles and small-pox, are not unfrequently followed by periostitis and necrosis of the alveolar portion of the jaws, the manifestation and course of the symptoms after all three being identical, although there is some difference in the frequency with which these several maladies produce this result, the majority of authors stating that it is most frequent after scarlet fever, next after measles, and least often after small pox.

That necrosis of the jaws is one of the specific sequelæ of the exanthemata seems to be undoubted. Occasionally, it is probable that necrosis may follow only as a result of general weakness and cachexia produced by fever, but in the majority of cases it is a marked fact that children who are the subjects of exanthematous necrosis are particularly healthy. It must be remembered too, that severe and extensive necrosis is not necessarily preceded by severe febrile symptoms; a slight attack of measles for example, being not unfrequently followed by considerable necrosis, and *vice versa.* The maxillary bones too, the only ones in which necrosis shows itself after the exanthemata.

The three preceding facts tend to the belief that the close relation of the jaws to the teeth is the cause of the former becoming attacked, the vascular parts of the dental organs being the original seat of mischief. It is not surprising that the poison of the eruptive fevers, possessing as it does special affinity for the dermal system, should attack the teeth, which are members of that system. For although, when their development is completed, the teeth, or rather their pulps, possess (as compared with other tissues) a low state of vitality, and are therefore not so subject to affection by disease as are more vascular and rapidly changing parts, yet during their development they are the seat of such vascularity and rapid nutritional changes. And it is at this time when dental development is going on more rapidly and more extensively than at any other, that exanthematous necrosis almost invariably shows itself, nearly all the cases on record occurring between the ages of 3 and 8, usually between 4 and 5.

This theory of the dental origin of necrosis is deduced from facts which it in its turn explains. For it gives us the rationale of the jaws being attacked, rather than any other bones in the body; and it explains the reason of severe necrosis following slight manifestation of fever, by suggesting that the slighter the effect of the poison in one part of the tegumentary system, for which it has such an affinity, the more deadly and extensive is it likely to be in another.

Phosphorous necrosis, although it is occasionally produced in other ways than by the phosphoric fumes to which lucifer match makers are exposed, was never noticed as a distinct disease until the manufacture of lucifer matches on a large scale was introduced. The actual poison which produces this form of the disease consists probably of a mixture of phosphoric and phosphorous acids dissolved in the saliva, although other substances are present to a greater or less extent in the fumes.

With one or two exceptions it is generally held that this poison takes effect locally, and only under certain conditions, namely, a direct or indirect exposure of the periosteum of the jaw, the continuous application of the poison to this exposure, and a particular temperature. Thus, phosphorous-necrosis may resemble that following the eruptive fevers, inasmuch as it is sometimes produced through the medium of the teeth. For, given the last two of the above-mentioned conditions, and exposure of the periosteum may occur in various ways, directly by fracture of the jaw, or tooth extraction, indirectly by the exposure of the dental pulp by caries, or possibly some other cause. Mr. Salter holds that although the disease is caused by the local application of the poison, exposure and consequent morbid condition of the dental pulp is primarily essential to phosphorous necrosis, the latter being only a secondary disease entirely dependent on the affection of the tooth pulp. Besides being negatived by the writings of other authors, the actual experiments of Von Bibra are opposed to this view, for he found that by extracting a rabbit's tooth, or breaking the jaw of one of these animals necrosis was produced, on the exposure of the wounded part to phosphoric fumes.

The difference between phosphorous and exanthematous necrosis exists in the fact that the former is the result of external poisonous influence, whilst the latter is a local manifestation of a poison pervading the whole system. Lorinser, the author who in 1839 first described this particular form of necrosis, holds or held the opinion, in common with one or two others, that it is also a local manifestation of constitutional poisoning; and there are one or two cases which may be cited in favour of this view.

Generally speaking, necrosis occurs more frequently in youth than in later life, and, as a rule, it oftener attacks the lower than the upper jaw, the reason of the latter preference appearing to be the more exposed position of the lower jaw, together with its greater compactness and limited blood supply as compared with the superior bones. As might be expected, however, when a morbid condition of the dental pulp is the immediate cause of the disease, the upper jaw is almost as often attacked after the eruptive fevers, and by phosphorus about as frequently as the inferior bone. The alveolar border surrounding the temporary molars is a favourite site of exanthematous necrosis.

The usual position of necrosis following syphilitic exudation is in flat bones with thin soft coverings, as the hard palate, although it occasionally attacks the compact tissue of the lower jaw.

The earliest *symptoms* of necrosis are usually those of periostitis, which are generally ushered in by slight grumblings of toothache, followed by intermittent wearing pain, which is worse at night, and increasing tenderness of the teeth. Later on come heat and swelling of the surrounding soft parts, accompanied by inflammatory redness (the colour being deepest at the edges of the gums), and excessive tenderness and looseness of the teeth. Combined with these local symptoms there is found more or less constitutional disturbance in the shape of symptomatic fever and its usual concomitants—furred tongue, quick pulse, and generally checked secretions.

At a later stage, simple periostitis being past, other symptoms set in. The gums begins to peel away from the alveolar border, and the teeth becomes discoloured and sometimes even black. Pus exudes between the hard and soft tissues, having an offensive odour which is very characteristic of necrosis, and the general swelling greatly increases, being accompanied in severe cases by œdema of the whole face and neck. The pent-up purulent matter between the periosteum and bone, not finding sufficient exit at the edges of the gums, or having that outlet closed by the superjacent swollen parts, points in some other direction. The pus has a tendency to gravitate, so that when the upper jaw is the seat of disease it generally finds its way into the mouth ; whilst when the mischief lies in the lower jaw it may burrow through the underlying soft tissues so as to point externally below the lower jaw, and even in the neck. Sphacelus of the soft parts surrounding the bone may follow these severe symptoms, as also may erysipelas.

The amount of fever and constitutional derangement may be very great, especially before the pus has found a vent for itself, delirium sometimes forming one of the symptoms. Nausea and vomiting not unfrequently follows from swallowing the purulent matter constantly being discharged when the necrosis has fairly set in.

Wherever the sinuses or cloacæ form, whether pointing inside the mouth or externally, they lead down through the surrounding swollen parts to hard sonorous bone. The latter instead of being entirely surrounded and shut in, the only access to it being by means of these cloacæ, may have a considerable part of its surface exposed, especially on the inner side of the arch. This is always the case when exfoliation only takes place. The bone when cut does not bleed, it is insensible, and in colour may be white, or if subject long to the presence of purulent matter, almost black. Frequently the surface of the bone is covered by a dirty greyish deposit not unlike pumice stone in appearance, and this is especially the case in phosphorous necrosis, though it is *not* a symptom peculiar to that variety.

The state of things described above, namely, extensive thickening of the soft tissues, the latter being more or less separated from the subjacent dead bone by purulent material, continues to exist for a longer or shorter time, for weeks or months, according to the time it takes for the dead bone or sequestrum to become separated from the surrounding healthy parts. So long as the former remains it acts upon the neighbouring living tissues as a foreign and consequently irritating body, keeping up a constant purulent discharge.

If the necrosis be only limited in extent the symptoms will be slight, the discomfort may be very little, and the functions of the oral cavity very little interfered with.

If on the other hand the attack is at all severe, the patient finds himself unable to masticate and able only to swallow fluid or semifluid food, with which he gulps down more or less of the pus present in so large a quantity in the neighbourhood of the diseased parts. The inability to take solid food, the presence in the blood of morbid material (which is often the case), and the constant pain and disgusting odour in a part so near to and so closely connected with the sensory organs (especially those of taste and smell), all tend to lower the general health, and to exhaust the vital powers of the unfortunate patient.

Phosphorous necrosis often produces these severe symptoms, otherwise not differing in any important particular from ordinary necrosis. The previous health of those affected by this form of the disease is, as a rule, very good. The symptoms often begin with pain in one particular tooth, the pulp of which may possibly have been the one to conduct the poison to the lining membrane of the bone. The pumice stone deposit is almost invariably present in these cases, so that some authors have pointed it out as peculiar to phosphorous necrosis, but this is contradicted by its undoubted occurrence in cases not of this variety. Pulmonary trouble of some form or other is occasionally present as a complication, resulting from the inhalation of the fumes.

Severe constitutional symptoms very rarely accompany exanthematous necrosis; little more than slight soreness of the mouth, and offensive purulent discharge taking place. There is seldom any pain or swelling. The disease generally manifests itself about three or four weeks after recovery from the febrile attack by a line of suppuration at the edges of the gum, which extends downwards (towards the base of the alveolar border), but not laterally. It is very unusual for more than the alveolar portion of either superior or inferior bone to be attacked, but if one side of the jaw is affected the other in all probability will be also, there being a marked tendency to symmetry in these cases. It is uncommon for any considerable portion even of the alveolar border to be destroyed. As an example of a severe case, one occurring in Mr. Salter's practice, may be quoted in which the eight temporary molars were lost together with their successors and their alveoli.

The *pathology* of necrosis is not uninteresting as showing forth in a remarkable degree the reparative powers of nature, and the processes which she employs to separate and cast off dead from living tissue. Unchecked inflammation of the periosteum results in the exudation between that membrane and the bone which it covers of semi-fluid material derived from the congested periosteal vessels, and essentially consisting of blood plasma and leucocytes. This exudation may either be reabsorbed, or it may become the seat of an ossific deposit (as in sclerosis and chronic rheumatic periostitis), or it may degenerate into pus. The latter course being taken, the bone and the membrane become separated by this morbid matter, and the bone usually dies—from two causes ; one, that its surface is bathed in a fluid antagonistic to vitality; the other (and chief), that it is deprived of one of its principal sources of nourishment. When once any tissue, and hence bone, becomes dead, it remains so : it never regains that condition called life, it answers no further purpose in the animal economy, it endangers the life of neighbouring parts, and it must be got rid of. That bone then, or portion of bone, which has lost its vitality, by reason of the cessation of circulation within it, acts as an irritant on the surrounding tissues. It keeps up constant irritation of the periosteum, so that a constant flow of pus from the latter takes place. It produces at its line of junction with healthy bone ulceration of that sound part. Ulceration being molecular destruction of a part by reason of imperfect nutrition, resulting from the presence of morbid material in the neighbourhood of that part, a groove is formed between the dead and living bone by the breaking down and disintegration of the latter. By continued molecular disintegration this groove is deepened, until at length the necrosed bone is completely separated from that still retaining its vitality. Meanwhile changes are taking place in the surrounding soft tissues. Profuse exudation is produced in every direction; but here instead of forming pus, it becomes rapidly organised into fibrous and then into bony substance by the deposition of lime salts. This new structure lies round the dead bone, forming a sheath for it as it were. Now, Mr. Bryant in his work on Surgery, makes the statement that when death of bone follows periostitis there is no bony sheath produced, that this only follows when the death follows endostitis, and the periosteum remains healthy. Is there, then, no acute periostitis in those cases where, for example, the whole of the lower jaw has been lost by necrosis and replaced by new bone, which new bone has not been produced after the removal of the sequestrum, but produced around the latter before its removal ? Admitting that in some cases the disease might have its origin in the membranous lining of the cancellous portion of the bone, yet the symptoms observed in the progress of the disease certainly indicate the existence of periostitis, and it would, indeed, be impossible for the whole thickness of a bone to separate from the soft parts surrounding it without the periosteum becoming involved.

From what tissue then is the sheath of the bone produced ? Certainly not from that portion of the periosteum which forms the seat of a purulent discharge. But the sheath of new bone covering a certain sequestrum may be formed from other tissues than the periosteum which originally belonged to that sequestrum, and which has become the seat of a purulent discharge. It may be formed by lymph effused from surrounding healthy periosteum or from other soft parts as the gums and sub-mucous structures, for it has been found, that although periosteum is the principal tissue in which new bone substance may be deposited, yet it is not by any means the only one. The sequestrum having become separated from the surrounding bone, and the sheath of new bone having attained sufficient strength to form a substitute for it, the latter has to be got rid of. This is partially done in some cases by the inward growth of the sheath, and consequent thrusting outwards of the dead part. But this inward growth may result in the more firm retention of the sequestrum, and in nearly all cases the surgeon's aid is required in its removal. When the sequestrum has gone, granulations spring up in its place, these rapidly become ossified, and at the same time absorption goes on in the outer layers of the new bone, so that it gradually becomes of the same size and shape as its predecessor.

In the case of dead bone produced by burning of the soft tissues the former is exfoliated by the process of ulceration, but necrosis in the strict application of the term does not occur, for the soft parts being entirely removed from the surface of the bone a sheath cannot be formed over it. When, however, the exfoliation has taken place ossification may occur in the tissue left bare by the removal of the bone, or the loss may gradually be made good by ossific deposits in granulations springing from the surrounding healthy bone.

I have spoken of exanthematous *necrosis*, but it must be remembered that no bony repair occurs in these cases, exfoliation simply taking place. The reason of this non-reproduction is evident, for if the teeth are removed with the alveoli, the replacement merely of the latter would be of no use. If the permanent tooth germs are not carried away with the exfoliated bone they may in due time become erupted and have alveoli developed round them, but this is no more than happens when there is no disease. Neither is the term necrosis in its narrower sense applicable to death of the superior maxillary bone from any cause, for this is never replaced by new bone, although it may be (in children only as a rule), by fibrous tissue.

The bone of repair in true necrosis closely resembles normal bone when its development is completed. The grey ossific deposit often found on the sequestrum is probably thrown out by the disabled periosteum covering in the latter. This differs from the true bone of repair, chiefly in presenting a much looser texture, and in having its laminæ perpendicular to those of the old bone, instead of parallel to them.

The *treatment* of necrosis may be included under the following heads:—

1. The sequestrum must not be surgically interfered with until it has become quite separated from the surrounding healthy parts.
2. Free exit for purulent matter must be provided.
3. The diseased parts should be kept as clean as possible, and free from local irritation.
4. The patient's general health must be kept up.

The sequestrum may become separated and loose in six weeks or a couple of months; or it may take six or twelve months, or even more. Six months usually forms the limit of the time, and if by then the separation has not taken place, it is certainly a question, whether it is not the wisest plan to interfere surgically, to complete at once what nature has begun. For after this time, the new bony deposition gradually becomes so hard and solid, that the extrication of the sequestrum is no easy matter. And it must be remembered that the dead bone may really have become separated, although when felt by the probe it seems to be firmly fixed, as this firmness may be the result of the pressure of the sheath, or of granulations surrounding the sequestrum.

The ease with which the operation of sequestrotomy is performed, depends of course on the size of the necrosed bone, and the extent to which it is covered in by its successor. The former may merely lie in a groove between two walls as it were, of new structure, or it may be entirely shut in, except where one or two cloacæ lead down to it. In the latter case an incision must be made through the sheath, and as the object to be kept in view, is to interfere with this new bone as little as possible, only just so much should be cut away, as to allow of the desired removal. If conveniently placed, it is a good plan simply to enlarge one of the sinuses, or to join two into one. If the sequestrum be large, it may be necessary to divide it, and this may advantageously be done at the angles or the symphysis. It is scarcely necessary to add, that whenever it is possible (as it is in the majority of cases) the operation should be performed through the mouth.

Some continental surgeons adopt the plan of immediate interference, removing the diseased bone, and carefully leaving the periosteum behind. Some successful cases have been brought forward in support of this method, and at first sight it would seem to be the surgeon's duty at once to remove a dead structure, but the plan seems objectionable for the following reasons. Although in the earlier part of this paper it was stated as one of the characteristic features of necrosis, that the part affected loses its vitality all at once, yet it is by no means always easy to tell the exact extent of the disease in the bone, when the latter is covered in with soft tissue. So that in removal by the continental method too little bone may be taken away, and a second operation be subsequently necessary; or, on the other hand, in his zeal to do his work thoroughly, the operator may remove with the affected portion a large amount of healthy bone. This early interference, too, may not improbably result in the serious disturbance and absolute stoppage of the formative action, and it is certainly questionable whether the development of the new bone is carried on any quicker after the removal from its neighbourhood of the necrosed portion. A further reason for leaving the sequestrum to become naturally loosened, is that by such means teeth are sometimes retained, which would otherwise be removed with the necrosed bone. Especially in exanthematous necrosis is it important to allow the sequestrum to separate itself from the soft as well as the bony parts, for thus the germs of the permanent teeth are allowed every chance of remaining, and ultimately assumed their normal position. But the chief objection to the immediate removal of the diseased bone (especially if the latter be of any considerable extent) lies in the fact that the patient is thereby exposed to the possibility of sustaining great deformity. For although a dead body, the sequestrum may help to support the ossifying frame-work around it, which without such support would be very likely to get pulled out of shape by the action of the muscles inserted into or near it.

It is especially important when necrosis is threatening, that the pent-up pus should be provided with a sufficient outlet, which may be done by making incisions right down to the bone.

Without disturbing the sequestrum or its surrounding sheath, it is often practicable to remove by the bone forceps any projecting portions of dead bone, or to extract any teeth which may be the source of much local irritation. Where the teeth are not specially painful and irritating they should be left, as cases are on record in which, though their sockets have been entirely destroyed, yet the teeth have remained *in sitû,* and have ultimately become so firm as to be used in mastication.

Astringent and deodorant local applications should be made use of, decoction of cinchona, solution of alum, of permanganate of potash and of sulphate of zinc being among the most useful. Mr. S. H. Cartwright recommends the following mouth-wash :

℞ Potass. Permang., gr. iij;
Zinci Sulphatis, gr. ii;
Acidi Carbolici, ♏v;
Ad Aquæ Rosæ, ℥ij;

and Mr. Salter speaks well of dilute solution of chloride of lime in exanthematous necrosis.

When the condition of the patient's mouth is such that the use of solid food is impracticable, his food must be prepared for him; mashed meat, beef-tea, milk, and eggs, forming staple articles of diet. If much pain and trouble is experienced in deglutition, a simple apparatus like that described by Mr. Dukes in the 'Lancet' a week or two ago, for feeding through the nose, may prove of value. Tonics should be carefully administered, but cod-liver oil and steel may often be taken very advantageously. In mercurial and syphilitic necrosis, iodide of potassium may be given, but it should be used with caution, as it tends to lower the system if continued for long. In phosphorous necrosis, the patient should be removed as soon as possible from the influence of the fumes which produced the disease, fresh air being of the greatest importance. In cases where necrosis is threatening, and have actually set in, an ammoniuretted atmosphere may do some good in averting the dreaded effect. But phosphorous necrosis would be comparatively unknown if sufficient care were taken to promote scrupulous cleanliness and thorough ventilation in certain processes concerned in the manufacture of lucifer matches, or better still if only the amorphous phosphorus were used in this manufacture.

When the treatment concerns the upper jaw, and indeed any part in which exfoliation only takes place, surgical interference is not so much to be deprecated, there being no sheath of forming bone to be disturbed.

I have not spoken of the treatment to be adopted in the earliest stages of necrosis, when, indeed, this disease is only imminent, and may be averted by prompt measures, as the latter fall under the treatment of periostitis.

The *results* following necrosis are various. In successful cases restoration to the normal state of health follows very rapidly after the removal of the sequestrum. The reparative action may be so complete as to restore completely the lost bone, and even to form a new articulation, when the condyles have been necrosed. But Mr. Salter has called attention to the fact that this bone of repair, although it may at first fairly replace its predecessor in size, shape, position, and articulation, does sometimes after the lapse of a few years dwindle down into a mere ridge of bone. This wasting occurs probably only in those cases where the new jaw has not been used for mastication, perhaps on account of the absence of teeth, perhaps on account of limited movement. This diminution of size, consequent on disuse, may be seen in other parts of the body, as for example, in the muscles of a paralysed limb. In the latter case, by means of galvanic currents, the muscles may be forced into action, and so retain their size; so also it is likely, that if the jaws in question were provided with a function, in the shape of mastication, by the aid of artificial teeth, they would retain their original dimensions.

Instead of complete reparation, only partial restoration may take place, and, as in exfoliation, there may be no replacement at all, in which case frightful deformity may ensue.

Death may follow necrosis as a result of several immediate causes. It may be the consequence of sheer exhaustion, or of blood-poisoning. Or it may occur from secondary affections of the brain, produced by the conduction to that organ of morbid inflammatory products. Or hæmorrhage may take place, with fatal termination, the cause being the laceration of a blood-vessel by a ragged and loose sequestrum. Gangrene of the cheek too, following necrosis, sometimes terminates fatally.

The diagnosis of necrosis ought not to be difficult. Besides physiological differences, the chief practical distinctions between it and caries of the bone are that the one possesses a hard, sonorous, comparatively smooth surface, insensible and bloodless, whilst the surface of the latter presents a rough disintegrating condition, soft, sensitive and vascular. Cancrum oris is distinguished by sloughing of the external soft parts, a condition very rarely shown in necrosis. Great swelling, and the presence of what may look like a cloaca may lead one to suspect necrosis, when there is nothing worse than alveolar abscess.

NECROSIS OF THE TEETH is not a very wide subject.

As applied to these organs, the term does not necessarily mean absolute death, nor does it imply reparation of any kind. Necrosis of the teeth, is like that of bone, in that it does not involve decomposition of the part affected, although discoloration may ensue.

There are *two kinds of necrosis in teeth* — total and partial, of which latter there are again two sorts. A tooth has two sources of nutrition, the pulp and the alveolar-dentar periosteum, and when it is cut off from both of these it becomes quite dead. When a tooth loses its connection with one or other of these, but not both, it is said to be partially necrosed.

Death of the pulp produces death of the greater part of the tooth' but that part (namely, the cementum, the outer layer of dentine in the fang, and probably a minute quantity in the crown) which is supplied by the periosteal vessels may still retain its vitality, so that the tooth holds its place as firmly as ever. On the other hand, the pulp may continue to live, whilst the connection of the cementum with the periosteum is to a great extent, if not entirely severed. In teeth having more than one root, this may occur on one or two of the fangs only.

Among the many *causes* of tooth necrosis are, mechanical violence, necrosis or fracture of the jaw, alveolar periostitis, the destruction of the dental pulp by acute inflammation or by excision, and fever.

Mechanical violence may occur in the shape of a blow, or as torsion (which is for this reason a risky operation), or as pressure of opposing or contiguous teeth. Necrosis of the jaw, itself sometimes produced by disease of the teeth, may and most frequently does cause death of the teeth contained in the affected bone. Chronic alveolar periostitis, in which the gums and edges of the sockets gradually recede, may produce that form of necrosis in which the greater part of the tooth retains its vitality for some time after its vascular connection with the socket is almost completely cut off. Certain fevers (not only the exanthemata, but typhus for example) may produce death of the dental pulp. It must not be thought that necrosis is only due to accident or disease, anything that results in death of the pulp, producing it in fact. So that when we excise or otherwise destroy the pulp of a tooth in the course of our operations upon the latter, we produce partial necrosis.

None of the three forms of tooth necrosis are necessarily followed by irritation of the surrounding parts. For although it seems contrary to the usual method of things, where dead bodies are thrown off as useless, and detrimental to life, yet teeth which are quite dead, which may actually have been removed from, and replaced in their sockets, may still be retained firmly within the latter. And the same condition is frequently found in death of the dental pulp; although in both cases great irritation of the alveolar periosteum and the other neighbouring soft parts may be set up. In those cases however, where the pulp forms almost the only living connection of the tooth with the surrounding tissues, it is rare for any other condition than constant irritation to be present. Tartar is often deposited almost up to the apex of the fang, which aggravates the periosteal pain produced by pressure of the teeth, and by heat and cold.

The discoloration of one necrosed tooth, and not of another is explained by the fact that the staining is due to the death of the pulp under a certain condition, namely, when its vessels are full. Under these circumstances, the degeneration of the pulp results in the decomposition of the blood corpuscles, the liberation of the colouring matter contained in them, and the permeation of the dentinal tissue by that colouring matter.

The greater vascularity of the teeth in young people than in old, explains the reason why necrosed teeth in the former should generally have such a much deeper discolouration than in the latter. The stain may vary from a dull pink to black. The semi-transparent aspect of the tooth after it has been discolored for some time, is probably owing to the permeation of the dentine by fatty matter.

The upper front teeth, (especially the two central incisors) are the ones which most frequently become necrosed, probably on account of their exposed position.

The *treatment* of necrosis occurring in the teeth is not very complicated. If there is severe irritation and inflammation of the soft parts supervening sudden necrosis of a tooth, the application of leeches or the use of the lancet may do much to lessen it. If a tooth is a constant source of painful irritation, extraction seems to be the only remedy, but if its presence only occasionally gives rise to troublesome symptoms, the latter may be kept down by an occasional leech, and by painting the gum round the tooth in question with Tinct. Iodi et Aconiti Fort.

The removal of the discoloration of necrosed teeth has been effected by drilling into the pulp chamber, carefully washing out the contents of the latter and of the canal, and then inserting some bleaching agent into the cavity for a day, such as chloride of lime or oxalic acid.

The fang of a necrosed tooth not unfrequently undergoes absorption, so that it becomes loose and is ultimately shed. On the constant periosteal irritation produced, may result in bony deposition in the socket, and consequent obtrusion and falling out of the dead organ. Alveolar abscess and even necrosis of the bone may follow the irritation produced by a necrosed tooth.

Gentlemen, you will be able to find all the matter which I have brought before you to-night in the various works to which we have access, my attempt having been, not so much to discover and expound new facts, as to form some sort of comparison and epitome of those already known.

An animated discussion took place, in which Messrs. Ackery, Hepburn, Harding, and Underwood, took part.

A very cordial vote of thanks was given to Mr. Matheson, and the meeting terminated.

Miscellanea.

THE SCHOOL.

[The following story of a school has been sent us by an old friend, and one well known to, and respected in, our profession, with a request that we would publish it. We demurred on the score that we did not see how the story of a school could interest Dentists, but he replied that some of our readers would think differently, and as many of them had been in this school, probably they would supply further particulars which would justify our having published it; so to oblige him, and in hopes of obtaining these said particulars, whatever they may be, we do so.—Ed. B. J. D. S.]

Once upon a time there was a school; in this school the first-class boys were good, the second-class boys were middling, and the third-class—well, as to their morals and manners, the latter were bad and the former did not exist. Now, the first-class boys did not like this, and said amongst themselves, "Let us shut ourselves up in our room and call ourselves a Society, and forget all about the other boys. We don't want the other boys, and we must be respectable."

Now, when the second-class boys discovered that the first-class had locked themselves up they were seriously troubled, and said amongst themselves, "Behold, our guides and monitors have left us, and we have none to teach us to behave like gentlemen," and they asked the first-class boys to come again and rule over them; and the first-class boys said amongst themselves, "Behold, we are THE Society; wherefore shall we trouble ourselves," and they would not, but immediately went to sleep.

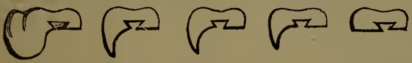
Now, the second-class boys, when they found the first-class boys were almost always asleep, were sorry and tried to wake them, first by writing in a book, and then by meeting together and making a great noise; and the burden of their cry was, "Come amongst us and rule over us;" and behold, again, they would not.

And the third-class boys when they heard the turmoil drew unto one another and said, "Behold, we have got no rulers; let us therefore make our own. One boy is as good as another, and a great deal better, and we will all be kings in our own right." Now, the first-class boys called themselves L.S.D. because they had plenty of money, and M.O.S. because they were not rolling stones which gathered no moss. And the second-class boys called themselves nothing because they wanted the first-class boys to come with them and teach them and rule over them. And the third-class boys said, "Behold, the first- and second-class boys are divided and cannot stand up against us, neither will they teach or look at us. Now, as we are many, let us take unto ourselves a good title; let it not be L.S.D., because we have no money, nor M.O.S., because we are not old and mossy, but let it be Doctor, and then all other boys out of the school will greatly respect us." And the second-class boys were sorely troubled because they were honest and would not take unto themselves a false name, and again asked the first-class boys to come amongst them and help to teach the third-class to behave themselves, saying, "Behold, our school is divided against itself and cannot stand, and verily we are ashamed and disgraced in our own eyes. Now come with us and we will help to teach them to be gentlemen because we cannot turn them out; let us join and make them ashamed of their evil ways, so that they will become like ourselves, and our school shall become a honour to us, for the boys in the other schools, behold, they laugh at us, saying, 'We know nothing except the way to quarrel.'"

And the boys in the first-class departed and shut themselves up in a room in a foreign country called "Laycester Squar" unto this day, where they will remain until a great and clever boy shall rise up amongst them and unite them all; and the name of this boy shall be handed down to posterity to be remembered for ever and ever.

MOLARS FOR SHALLOW CASES.

The Dental Manufacturing Company have sent us some very excellent specimens of these teeth with the subjoined engraving. As



it gives a much better idea of them than any description can afford, we may remark that the angles of the groove are as sharp in the actual teeth as they appear in the engraving, and from past experience we look upon this as a matter of no small value. We would suggest that the groove should be placed more to the front of the tooth, and thus the chief object for which they are designed, viz. to allow of grinding away more of the lingual surface should the bite need it, would be more effectually obtained.

APPOINTMENT.

Mr. A. F. Canton, L.D.S., has been appointed Dental Surgeon to the National Dental Hospital, vice Mr. Perkins, deceased.

NOTES AND QUERIES.

12. Can any of your readers give me some information respecting Quilaia Bark, which I have heard spoken of as a good dentrifice?

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.

ANSWERS TO CORRESPONDENTS.

"M. D. W."—Many thanks for paper.

"E. T. K."—The address shall be rectified in the next Dental Students' number.

"INQUIRER."—Yes. The case you refer to is to be found in the July number of this Journal, p. 368, where you will see the engraving.

"L. D. S."—The paper appeared in the 'Lancet' for October 21st, 1876, p. 571.

Communications have been received from Andrew Wilson (Edinburgh), M. L. Bell (London), John O'Duffy (Dublin), David Fletcher (Sydney, N.S.W.), M. D. Wood (Stockton-on-Tees), Thomas Fletcher (Warrington), S. S. White (Philadelphia), A. F. Canton (London), F. Ryding (Dublin), H. B., Felix Weiss (London), F. H. Balkwill (Plymouth), Royal College of Physicians.

BOOKS RECEIVED.

'Pallatine Fissure; its Remedy by Artificial Means considered.' By Charles W. Stearns, M.D.
'Dental Anatomy.' By Charles S. Tomes, Esq., M.A.
'A Manual of Dental Mechanics.' By Oakley Coles, Esq., L.D.S.
"Plastic Fillings." Reprinted from the 'Transactions of the New York Odontological Society.'
'The Dublin Morning Mail.'
'The Dental Advertiser.'
'Le Progrès Médical.'
'Deutsche Vierteljahrsschrift für Zahnheilkunde.'
'The Daily Gazette for Middlesborough, Stockton, Hartlepool, and Cleveland District.'
'The Dental Cosmos.'
'Saunders' News Letter and Daily Advertiser.'
'The Freeman's Journal.'
'The Nation.'
'The Doctor.'
'The Pennsylvania Journal of Dental Science.'
'The Dublin Express.'
'The Dublin Weekly News.'
'Druggists' Advertiser and Trade Journal.'
'The Dental Register.'
'Johnston's Dental Miscellany.'
'Correspondenz-Blatt für Bahnärzte.'
'Australian Town and Country Journal.'
'L'Odontologia Revista, mensile sui progressi Della Chirurgia E. Della prote(i Dentale.'
'Le Progrès Dentaire.'

British Journal of Dental Science.

No. 246. LONDON, DECEMBER, 1876. Vol. XIX.

Dental Surgery and Medicine.

ON DISEASES OF THE ANTRUM.

By W. Spencer Watson, Esq., F.R.C.S., B.M. Lond.,
Surgeon to the Great Northern Hospital, to the Royal South London Ophthalmic Hospital, and to the Central London Ophthalmic Hospital.

(*Continued from p.* 570.)

Recurrent fibroid tumours and cases of *medullary sarcoma* are generally associated with some disease primarily in the body of the jawbone or in the alveolar ridge, though the symptoms may afterwards be developed towards the nasal cavities. It is, there, important to note the chief clinical features in these cases as an aid to diagnosis.

The distinction between the fibroid polypi, or tumours in the upper jaw similating polypi, and the gelatinous polypi, is not always a distinction of kind. It may be one only of development. Tumours which, in their early stages, have all the characteristics of the gelatinous form, may, when recurrent after several operations for their removal, become much more fleshy and firm in consistence, and, when examined microscopically, have all the structural peculiarities of sarcoma.* But the very firm fibrous tumours and the osteosarcomata will generally retain their original characters from first to last. There is no essential malignancy about these growths, that is to say, they have no tendency to contaminate and involve the neighbouring structures in their own form of growth, and they do not spread to the adjacent lymphatic glands, nor are they reproduced in distant organs of the body. But the aspect of the patient is often very much like that of one affected with malignant disease, and, as the tumour penetrates the bones, and ultimately the integuments, and causes fistulous openings on the cheek with fungus protrusions, with a foul-smelling discharge and sometimes a bleeding surface, the appearance of the disease is very much the same as that of medullary disease, and if the tumour has not been removed before this stage has been reached, there is every probability of a fatal issue. Death is generally preceded by great wasting and anæmia, and pressure upon the base of the brain is usually announced by convulsions and coma. Sometimes the system seems to be infected by the absorption of foul discharges, and the patient dies of a form of septicæmia.

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* Mr. Cæsar Hawkins is of opinion that the distinction between the fibrous polypi and the gelatinous forms, depends upon the seat of the tumour, that when it springs from a part of the nasal fossæ in which the fibrous tissues are predominant, the resulting tumour is fibrous; but that if the mucous tissue is the part affected, the gelatinous polypus is the result of the morbid process; and further, that a simple gelatinous polypus may in time become fibrous in consequence of its growth extending to the sub-mucous tissue.

There is good reason for believing that some sarcomatous tumours, or, as they are sometimes called, fungus of the jaw, degenerate into true cancers. This may be due to spontaneous changes, such as are observed in adenomatous growths in other parts, or possibly to the irritation of external applications or caustics. The tumour then becomes the seat of severe lancinating pains: there is frequent epistaxis: the presenting part is softened, and projects in a fungous form, and an ichorous discharge escapes from the fistulous openings in the cheek, or by the side of the gums, or in the palatine vault. The bones are softened, and destroyed rapidly, and febrile excitement becomes more and more developed, until the patient becomes exhausted by the pain and discharges, and dies miserably. If, however, a degenerated fibroid tumour of this kind is operated on before the lymphatic glands in the neck have become affected, there is every prospect of arresting the disease and saving the patient's life. In a case treated by Mr. Lawson, by excision of the tumour and subsequent application of caustics, the result was excellent, and most encouraging as to the possible results of cases ordinarily most unpromising ('Clinical Society's Transactions,' vol. vi, p. 20).

Myeloid tumours are found in this cavity (see Paget's 'Surgical Pathology,' vol. ii, p. 29, and two cases of Mr. Canton's are recorded by Mr. Christopher Heath (one from the 'Pathological Transactions,' vol. xvii).

Osseous growths have often been met with occupying the antrum, and one of the most remarkable was a case of Mr. Hilton's ('Guy's Hospital Reports,' vol. i): a large, ivory-like mass, occupying the whole of the upper jaw, sloughed away and fell out spontaneously.

Several other instances of large ivory-like growths of the upper part of the face have ultimately invaded the antrum, as well as all the surrounding cavities (see 'Pathological Transactions,' vol. xix, p. 310 et seq.).

It is thought by Sir James Paget better not to attempt the removal of these growths by operation with instruments, as it is so very difficult to ascertain exactly the depth to which they extend, and as some of them have been found to extend deeply into the cranial cavity, great caution is required in dealing with them. Sir James Paget would prefer to imitate the operations of nature, as exemplified in Mr. Hilton's case, and to apply caustics to the exposed surface of the tumour, with a view of exciting a sloughing action and spontaneous detachment of at least a part of the growth. With these views I am inclined to think most surgeons of experience will agree.

As to the cancellous form of osseous growths invading the antrum from the ascending process of the superior maxillary bone, of which Sir James Paget has given two examples ('Lectures on Surgical Pathology,' vol. ii, pp. 241 and 242), there seems no reason why an attempt should not be made to extirpate the tumours which, in these cases, originate in the upper maxilla.

Hyperostosis of all the bones of the face sometimes invade the antra and obliterate them. Specimens of the kind are found in the College of Surgeons' Museum, and in that of St. Thomas and St. Bartholomew's Hospitals. In the museum of St. Thomas' there is a specially remarkable specimen of this disease, marked "C 195." It is "the skull of a fisherwoman, long remarkable even at Billingsgate for her hideous appearance. Two large swellings had been formed under the orbits in the fore parts of the cheeks, between which the nose appeared wedged, and the nostrils were closed. Each eye projected considerably from its socket. This person was seized with a fit which seemed to be of an apoplectic nature, and in that state was brought into St. Thomas' Hospital, where she almost immediately died" ("Surgical Essays" by Cooper and Travers, part i, p. 171). The specimen shows, in connection with each superior maxilla, a rounded bony growth, extending from the lower margin of the orbit to the roots of the alveolar process. Each mass projects considerably into the floor of the orbit, diminishing materially the size of its cavity. The left orbit is also encroached on by an additional growth that projects downwards and outwards from the orbitar plate of the frontal bone. On removing the skull-cap, the increased density and thickness of the frontal bone may be seen; this, however, is most marked on the right side, and seems to have occurred principally on the internal table;

a cup-shaped growth may also be seen projecting into the cavity of the cranium from the left orbitar plate of the frontal bone. The various sections that have been made through the specimen show that the cavity of each antrum is occupied by the growth, which, by its projection inwards, has also encroached upon the nasal fossæ. The frontal and ethmoidal sinuses are filled with a similar deposit. ('Catalogue of St. Thomas' Hospital Museum,' vol. ii, p. 84).

The extensive and almost symmetrical growth of these enlargements of the bones seems to point to some constitutional origin of the disease, but the exact nature of this is not known. They are probably related to a disease affecting the bones of the face generally, to which Virchow has given the name of leontiasis ossea, and which seems to have some pathological relationship to elephantiasis (see Virchow, 'Krankhaften Geschwülste,' Band ii, p. 23), the chief points of resemblance between the two diseases being the intermittent attacks of a kind of erysipelas. This peculiarity in a case of hyperostosis was well marked in the following case (translated from Virchow, op. cit., vol. ii, p. 24) :

> A girl, previously healthy, became amaurotic at the age of ten years, and had an attack of epilepsy, followed, during whole months, by a violent headache, accompanied with delirium. As soon as this ceased, the convulsive attacks became more frequent, and at the end of each of these an attack of erysipelas came on which invaded the whole head, and lasted, with the desquamation, from eight to ten days. At the age of 16 years the hearing was lost, the head enlarged; there were violent pains, heaviness of the head, feebleness and loss of smell, &c.; the poor patient died at last, at the age of 17 years, immediately after a fresh attack of erysipelas.

In St. Bartholomew's Hospital Museum (Series I, p. 62) is a specimen of hyperostosis of the bones of the face, filling up both the antra. In sections through the sinuses, their cavities are represented by spaces of the size of a cob-nut in one, and not so large as a pea in the other. This indicates, as the disease of the adjacent bones does also, that their obliteration is in consequence, not of the growth of tumours into them, but of the thickening of their walls. The new bone by which they are increased in thickness is hard, nearly solid, and heavy; it is almost all formed on their inner surfaces; only a few small similar growths are elevated on their outer surfaces, and project on the face and into one of the orbits. The septum nasi and spongy bones are similarly enlarged, thickened, and very dense in their texture.

The following case of M. Forcade's also illustrates the subject (translated from Virchow, 'Die Krankhaften Geschwülste,' Band ii, p. 22) :

M. Forcade (de Perpignan), a surgeon, had a son, who, with the exception of an attack of smallpox, had enjoyed good health up to the age of twelve years (1734). At that time his father opened for him, *at the inner angle of the right eye, a lachrymal tumour*, which suppurated for a very long time. At the same time a tumour of the size of an almond was developed on the nasal process of the superior maxilla of the right side, and increased to such an extent that at 15 years of age it compressed the cartilages of the nose so that the young man could only breathe through his mouth. The disease extended thence to the lower jaw, which only retained its form at its articular extremities and its alveolar borders; the upper jaw, the walls of the orbit, with exception of the roof, the nasal apertures, the palatine bones, the malar bones, were attacked by the mischief and were swollen into shapeless masses. At 20 years of age his face was monstrous. There was exophthalmia with myopia, difficulty of speaking, and general debility. The patient died, blind and phthisical, at the age of 45 years. The head, when macerated, weighed 8¼ lbs., the lower jaw 3lbs. 3 oz. The large exostoses, tuberculated and lobulated, having the density of marble, projected around the lower jaw and from the lower margins of the orbitar cavities.

The bones of the cranium were thickened, studded with small, flat excrescences and entirely sclerosed. The frontal and maxillary sinuses had entirely disappeared. The remainder of the skeleton was remarkable for the fragility of the bones.

Lastly, it was noticed at the autopsy that the muscles of the face could be scarcely distinguished; they had assumed a fibrous aspect, and were confounded with the cellular tissue and the periosteum.

(*To be continued.*)

NOTES FROM A DENTIST'S CASE-BOOK.

By Felix Weiss, Esq., L.D.S.

(*Continued from page* 575.)

Irregularity of position is so commonly met with in the
wisdom tooth, and that irregularity may assume so many
different forms, I can hardly dwell upon every variety of
malposition presented. We cannot, however, fail to notice
that the upper tooth is less frequently discovered out of its 4
normal position than the lower, and that while we have great
varieties in the size and shape of the superior dens sapientiæ 4
the inferior is usually of the normal size.

While writing on the malposition of wisdom teeth it is hardly necessary to remark that in those cases where the patient suffers severe and continuous pain, accompanied by much local inflammation; and in cases where the tooth is not erupted at the usual period, careful examinations of the mouth should be made from time to time, with a view to ascertaining the direction the missing tooth is taking. But it should not be forgotten that a certain amount of suffering usually accompanies the eruption of all wisdom teeth, more particularly in the lower jaw, and that sometimes this irritation will extend to the formation of pus; but in cases where any great difficulty is experienced in the cutting of these teeth, extraction will generally be found to be necessary, and where this can be readily accomplished much inconvenience and misery to the adjoining tooth may be avoided.

But the wisdom tooth merits our careful observation for other reasons besides the irregularity of its position. It is the most variable of all the permanent teeth both in shape and size. I have in my possession a model in which both the upper wisdom teeth are very nearly twice the size of the molar tooth that stands next to them. The extreme width from the buccal to the lingual side in the one tooth is a little over $\frac{5}{8}$ths of an inch, and its companion on the opposite side is very little less. We may also have on the right a perfectly developed molar and on the left a cubic-crowned tooth resembling a lower bicuspid.

Although in exceptional cases the wisdom tooth may be found larger than an ordinary molar, we shall usually find it considerably smaller, and with each generation its size seems to be gradually becoming less; it should, however, be borne in mind that this change is more perceptible in the upper than in the lower jaw; indeed, as I have before remarked, the lower wisdom tooth, where it is erupted at all, is usually of the normal size, however small the jaw may be, and this will account in some measure for the disturbance frequently created by its eruption in that jaw more than in the upper. The two fangs are somewhat flattened and turned backwards, but in other respects the tooth has very little changed.

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In the upper we have a gradual merging of the three fangs into one, and the size of these teeth, as I have said, are becoming smaller and smaller, until at length we very commonly find them no larger than lower bicuspids, terminating with a single slender fang. I am indebted to the kindness of Mr. Turner for a specimen of a very small upper wisdom tooth, the broadest part of the crown of which is only $\frac{1}{8}$th of an inch in width, and the fang little more than half an inch in length.

But that which more than anything else distinguishes these strangely variable teeth is the irregular periods at which they are erupted, and the fact that they are in many instances absent altogether

Feeling that some reliable statistics on this interesting subject would be desirable, and having failed to discover any record that can guide us to a true estimate of the number of wisdom teeth absent in a given number of cases, I some time ago began to draw up such a record. The plan I adopted is very simple. I commenced by excluding all cases under the age of 26, taking particular care that the wisdom tooth had not been extracted, and where any doubt existed did not register the case at all. I took down first the name of the person, as a guide for future examinations if necessary, then the age, followed by the present state of the mouth as regards the wisdom teeth; and lastly, remarks upon any abnormality that might present itself. In private practice this is a long and tedious investigation, as any one acquainted with the details of an operation room will readily believe; but it has this great advantage, you can refer to your list and vouch for the accuracy of your statistics. In my paper delivered before the Odontological Society, April 3rd., 1876, I submitted the following list corrected to that date, and I see no reason to alter this record, as my after observations only confirm the statement there made. 4

Of 312 persons over 26 years of age,
152 had deficiencies of wisdom teeth;
29 had none at all;
44 had deficiencies in the upper and lower;
76 ,, ,, only;
32 ,, lower only.
21 with deficiencies were over 50 years of age.
In 312 persons, 304 wisdom teeth were absent.

It will readily be understood that, to obtain a return of any great value of persons having deficiencies of wisdom teeth in advanced life, a very large number of mouths must be examined, and the greatest care taken that our records are carefully compiled; for it is sometimes difficult to decide whether the tooth has been erupted and extracted, or never erupted at all. As a rule, where the tooth has never been erupted, the gum will present a square appearance; but where it has been extracted, the absorption will have defined the ridge of the maxilla.

Mr. Tomes in his well-known work on 'Dental Surgery'* writes:

"The great variability in the size and the shape of the wisdom tooth in civilised races, its occasional absence, and the irregularity of the period at which it is erupted, may, when contrasted with its large size and regular form in the lowest savage races, be taken as an indication that the wisdom tooth is slowly disappearing, and that there is a strong probability that in future generations it will be normally absent."

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* 'A System of Dental Surgery,' second edition, p. 224.

Mr. Charles Tomes has also very ably remarked, that "in the case of one of the higher monkeys, such as a gorilla, the third molar tooth was in every respect well developed, with a crown on which the cusps were arranged according to the typical pattern, as respects its cusps, of an upper or lower molar. Further, instead of its being cut very late and at an uncertain period, it was generally cut before the attainment of sexual maturity, or before the animal had cut its large canine teeth. In the lower races of mankind, too, the wisdom tooth was a large functional tooth, and preserved the 48
characteristic arrangements of cusps. On the other hand, among more civilised races it was quite exceptional for the 49
wisdom tooth to be a characteristic molar of the upper or lower jaw. That was one of the things which pointed to its gradual disappearance. If in any group of animals obviously united by descent any organ was gradually disappearing, it would be found that that organ was variable. An organ which was in full use did not vary much. ”/

That wisdom teeth are erupted late in life we have plenty of evidence to prove, but that they are sometimes absent altogether I am fully persuaded, and that they take the first place as absentees I firmly believe. I have seen several mouths in which the third molar has been cut after the age of 70, and in one case a patient had attained his 84th year. I have only been able personally to record a deficiency of laterals in four instances, and in two of these cases the teeth were cut later in life, after wearing artificial work (see pp. ~~525—6)~~. 37–8

I have particularly noticed that wherever any of the fourteen permanent teeth are absent, the wisdom teeth will be usually found to be also missing. In the table of deficiencies of wisdom teeth already quoted, I have registered two instances where the superior lateral incisors have never been erupted, and in both these cases the wisdom teeth are also absent, although the patients are over 30 years of age. I can mention another person, aged 40, in whose mouth the second bicuspid of the lower jaw is wanting, and in its place we have the temporary molar; while in both the upper and the lower jaw there are no wisdom teeth. A similar case is also entered where the temporary molars are standing on both sides, but neither in the one jaw nor the other are there any signs of the third molar. This lady's age is over 40. As I have said, in every case coming under my notice, where any deficiencies of permanent teeth exist, the wisdom teeth are also absent.

Several very interesting questions spring out of these investigations,—questions I should like to have it in my power to answer. May not the wisdom tooth remain through life developed, but unerupted? You will observe in various specimens jaws where the teeth are ground down, giving every indication of years of wear, and where the subjects must have passed the meridian of life, and yet the third molar remains buried in the alveolus.

Again, may not the original tooth-germ be sometimes absorbed, leaving no vestige of its past existence? I have no hesitation in stating that I believe such to be the case. In one lower jaw I had an opportunity of examining, the fourteen teeth were all perfectly formed; but there was no indication of a wisdom tooth ever having been developed. In another, the fourteen upper teeth were all thoroughly erupted, but no third molar could be discovered.

In the museum of the Odontological Society there will be found several well-developed jaws with the fourteen permanent teeth standing and bearing the evidence that they have had years of wear, but with no indication of a third molar. One upper and lower are in section, but there is not a vestige to indicate that the germ of a wisdom tooth has ever existed.

(*To be continued.*)

ON SOME RESULTS OF DENTAL LESIONS.

By Tullius W. Fay, M.R.C.S. Eng.

(Read before the Liverpool Medical Society.)

Mr. President and Gentlemen,—I purpose bringing before your notice this evening some affections met with in the practice of Dental surgery, by way of illustrating the *rapport* that exists between this specialty and general surgery and medicine. Dental caries, I believe, originates constitutionally. Enamel and dentine when imperfectly developed or calcified readily become the subjects of chemical decomposition, and then disintegration proceeds; but it may commence in the cementum if denuded through the receding of the gum. Odontalgia, although sometimes arising from ptyalism, rheumatism, pregnancy, or some disorder of the general health, is usually the result of dental lesion; such as fracture or abrasion, some morbid condition of the pulp, caries, exostosis or necrosis. When the pulp is exposed, periostitis, abscess, and even tetanus may supervene through reflex action. Mr. Tomes relates a fatal case of trismus that happened through the mechanical irritation occasioned by the pivoting of an artificial tooth upon a newly exposed raw pulp. Whenever a tooth is accidentally broken or purposely cut off with a view to substituting an artificial one, the pulp should be eradicated by means of a broach or drill or the actual cautery, for which momentary operation nitrous oxide gas may be given. The fang should be subsequently treated with carbolic acid or creosote to prevent periostitis, and if the tooth be not pivoted but attached to a plate, the root should be filled with gold; but sometimes when a tooth is excised it is discovered that the pulp cavity has become obliterated through calcification of the pulp. When the pulp of a tooth that is to be stopped is exposed but healthy, it should be saved by capping it over with some non-conducting substance and then introducing a gold or other filling; but if it be irreparably diseased, it must be extirpated. The least painful method, if no anæsthetic be administered, is to devitalise it with escharotics and then remove it. Abscess of the antrum may occur through extension of inflammation of the periosteum of the teeth. In 1869 a lady patient consulted me. The orbital plate was thrust upwards, producing amaurosis of the right eye; the anterior wall protruded considerably, and there was an escape of pus through the nose. I extracted a diseased upper anterior molar, then pierced the floor of the antrum with a trocar; a great flow of matter immediately followed. I afterwards syringed the cavity with warm water, and subsequently with a weak solution of permanganate of potash (1 drachm to 8 ounces of water); the injections were continued at intervals of three or four days, for as many weeks, at the expiration of which time there was no further discharge, and the sight was restored. Periostitis arising from any cause may terminate in necrosis.

Maxillary necrosis when due to scrofula more frequently affects the lower jaw, and when syphilis is the exciting cause the upper generally suffers, perforate palate being a not uncommon result, which lesion fortunately can be ameliorated by means of an artificial palate or obturator. This palliative treatment is also applicable to cases of cleft palate when surgical cure is inadmissible. Maxillary necrosis may be one of the sequelæ of eruptive fevers or may be occasioned by mechanical injury, the inhalation of the fumes of phosphorus or by ulcerative affections of the mouth as scurvy or cancrum oris, and not unfrequently is caused by carious teeth. In the early part of last year a mate, 28 years of age, presented himself for treatment. He said he had suffered continuously from a left lower molar during a voyage from Australia, and there being no surgeon on board the ship he could get no relief; when I saw him a portion of the outer side of the lower jaw was necrosed, and there was a sinus in the neck communicating with it. I extracted the tooth and perceived that the sequestrum was loose. I then made an incision through the gum, and removed it with a pair of necrosis forceps. The sinus rapidly healed.

Sinuses in the cheek and neck I have often seen at the Liverpool Dental Hospital, and in many cases have found them attributable to diseased teeth or stumps. Throat deafness I have known to occur through temporary occlusion of the Eustachian tube caused by extension of inflammation of the mucous membrane of the mouth to the pharynx. This happened in a lady upwards of 70.

I removed eight diseased lower teeth, and then by the use of astringents brought the mucous membrane into a healthy condition, and her hearing greatly improved.

Exostosis of the fangs of teeth due to abnormal development of the crusta petrosa, and sometimes resulting in the bony union of teeth, is frequently attended by neuralgia of some portion of the upper extremity.

I will mention the case of a lady, aged 30, who not long ago consulted me. She not only suffered from neuralgia of the head and face, but also from spinal irritation as well as impaired vision and hearing through reflex action. Upon inspection of her mouth I observed many badly decayed teeth. These I extracted upon a subsequent occasion, and found most of them exostosed. Ether was used to induce anæsthesia. Shortly after the operation all the symptoms alluded to disappeared. Anchylosis or true bony union of the teeth to the jaw, although a normal condition in reptiles, is not in human beings; but a dense fibrous connection occasionally exists, which, perhaps, may not incorrectly be termed fibrous anchylosis, which renders it very difficult if not impossible to extract the tooth without removing a portion of the alveolus. Obstinate cases of dyspepsia, not amenable to ordinary medical treatment, often yield when the teeth are properly attended to; artificial dentures tend to effect a cure by enabling the function of mastication to be duly performed, and by their aid the imperfect articulation of the edentulous may be corrected. Wisdom teeth are a frequent source not only of local but of remote irritation. When carious, ulceration and abscess of the neck may emanate; when jammed between the ramus of the jaw and the posterior molar tooth, trismus may supervene; and when impacted in the jaw, not only facial paralysis, but also that of the arm may ensue. Dentigerous cysts occur perhaps more frequently in connection with wisdom teeth than with the others, but a case came under my notice in February, 1870, where the canine tooth was the source of mischief. A young man, 22 years of age, consulted me about a swelling on the right side of the lower jaw. Upon examination I found the canine tooth wanting, and was informed by the patient that it had never made its appearance. As the tumour corresponded in position to that which the tooth should have occupied, I suspected that it must be impacted in the jaw. To make sure of the nature of the tumour I first of all punctured it, when a quantity of serum exuded. I then opened up the cyst, and having introduced a probe distinctly felt the tooth, which I then extracted. The parts soon contracted and healed. These cysts are formed by the dilatation of the tooth capsule. Their diagnosis is important, as they may be mistaken for solid tumours, and lead to deforming operations upon the jaw. Tumours consisting of a hypertrophied condition of the hard tissues of the teeth, and termed odontomes or tooth tumours, have been mistaken for necrosed bone and led to unnecessary operations. For a classification of them I beg to refer you to Mr. Salter's work on 'Dental Pathology and Surgery,' where you may also read of cases of epilepsy, paralysis, and other serious affections resulting from diseases of the teeth.

Mechanical Dentistry.

CHAPTERS ON MECHANICAL WORK, ILLUSTRATED BY CASES IN PRACTICE.

By F. H. Balkwill, Esq., L.D.S., Plymouth.

(*Continued from p.* 582.)

In determining of any particular denture for the upper jaw, whether the fit should be made of gold or vulcanised rubber, the amount of the fee to be received for the work done comes so largely into the consideration, that it is almost impossible to enter upon the subject without saying something upon this head.

Very opposite views are held. One professional friend whom I asked what difference he made in his fees between gold and vulcanite work, replied, "Very little; I do not charge for the material of my work, any more than an artist does when he sells a picture; my fee is for my taste in suiting the expression of the countenance, and skill in overcoming the engineering difficulties which are met with in attaining the desired end." Another friend, when asked the same question, replied, "I do not put out much vulcanite work; most of my lowers even I make in gold: my patients do not mind what they pay for good work, and I can get a fee for a gold piece which no one would give for vulcanite." Harris says nearly the same at p. 737: "As a rule patients will pay best for art when exercised on an expensive material."

Neither of these views seem to me quite sound. There is a large class of cases in which either material will make an equally successful and comfortable denture. In this class I think the choice should fairly have reference to the fee to be charged; for the wealthy patient using gold, for him who has to be careful of expenditure vulcanite. But there are many cases where dentures are required for the upper jaw in which a gold plate is distinctly indicated: on the other hand many, where vulcanite will give an evident advantage; and between these two classes many, in which a good deal of judgment will be required to choose the best material.

Whilst fully agreeing with the opinion first quoted, that it is our taste, knowledge, and skill which are paid for, and that the difficulties which we are called on to surmount give the profession its position; I still think that this skill and taste will be all the more valuable and valued if directed by a judgment unbiassed by the consideration of the amount to be received for the work done; and that the best way to attain this end will be by making such a difference in charge between the two styles of work as shall make it of no consequence to the dentist, in a monetary point of view, which material is used. When the difference is only in material and labour, there need only be a sufficient allowance made to cover the difference in the cost of these two articles. But wherever a real difficulty in dental engineering is surmounted more easily by vulcanite than gold, there ought to, and will inevitably in the long run, be a considerable diminution in the fee charged; for a comfortable denture is too valuable to the community to maintain an artificial price.

Artificial sets of teeth for edentulous mouths are usually arranged to maintain their proper positions by springs. Harris, indeed, says, "Spiral springs formerly very much used are now seldom employed;" and Oakley Coles, in his handbook: "A large number of practitioners have dispensed with their application to sets altogether." I think, however, that these expressions of opinion are rather sanguine, and that the excellency of work which is required by the practice, has led these practitioners to undertake a difficulty uncalled for by a sufficient gain to their patients of comfort or convenience.

It is generally easy to make a suction piece for an entire upper set, but to keep a complete lower denture steady at the same time multiplies the difficulty manifold; a slight shifting of the lower gives an uneven and unexpected bite, and the patient is liable to the mortification of finding both pieces hopelessly adrift in his or her mouth on most inopportune occasions.

Absorption of the alveolar ridge continues for years in some mouths, and many a set which is worn with comfort and confidence with springs, would, from this cause, have become entirely useless if made without, however perfect the suction might have been when first put into the mouth.

On the other hand, springs are not generally much inconvenience to the patient, but are felt to be reliable safeguards, in which great confidence is placed, so that however much we may admire the work of him who never uses springs for full sets, I think we shall find it safer practice to make their absence the exception rather than the rule.

That this is the general opinion of the profession is evidenced by the fact that the depôts maintain their sale of springs amongst our best practitioners, and that few complete sets worn without springs come under notice.

The advantage in lightness and adaptability which vulcanite has over gold being obviated when springs are used, and gold having the advantage in strength and absence of bulk. The only question to be considered in choosing the material is one of cost, except in a few exceptional cases in which thickness of substance is an advantage instead of the reverse.

Absorption removes the whole of the alveolar ridge in some upper jaws which have been edentulous a long time, leaving a flat platform with a nearly semicircular margin, having a slight depression between this and the buccal and labial adhesions.

In these cases, or such as approach them in character, the loss of substance, which it is well to restore to the patient, will have a much wider base than the teeth to be mounted, and if this restoration be made with vulcanite I can conceive of no advantage to be gained by putting a gold plate between it and the sustaining mucous membrane. The following case will illustrate what is meant.

Mrs. F— consulted me about a difficulty which she experienced in talking or reading aloud, with a set of teeth she was wearing. To do either fatigued her much, and some particular sounds, as far as memory serves me, th, ch, and sh could not be articulated at all. The mouth was one of those flat ones just described. The set was made of 20-carat gold plate, No. 9 thickness, with exceedingly long tube teeth standing nearly perpendicular to its surface.

Mrs. F—, who was elderly, and had been without natural teeth many years, produced for comparison a much older set, with which she could speak perfectly, but which required a large wad of cotton wool to be placed between the plate and the gum to enable it to be worn. On looking at the two sets side by side the reason of the defect suggested itself. The older of the two sets, having been made before the absorption of the alveolar ridge, still gave the oval cavity the required form for speech. As a tentative measure, the lost contour of the palate inside the teeth of the new set, was restored with Truman's gutta percha. This at once remedied the defect; an appointment was made for the application of a more permanent material, but the gutta percha answered so well that it was worn for nearly seven years, when the set having fallen into disrepair she had a new one, in which both upper and lower pieces were made in vulcanite.

With the exception of such cases I think a metal base preferable for all upper pieces which are kept up by springs; but where the presence of natural teeth in the lower jaw gives dependable steadiness to the denture it supports, an upper piece in vulcanite can often, in consequence of its lightness and fit, be kept up with more comfort to the patient.

Mrs. B— had worn a vulcanite piece supplying the loss of all the upper teeth except the wisdoms and centrals; these becoming loose were extracted and substitutes added to the plate in the usual method of repairing such deficiencies, and the piece worn, not very successfully, as a suction piece for some months to allow the usual recession of the parts from which the last teeth had been extracted.

The piece was then reset on a fresh model; but the success was not great, and the patient was very desirous of having springs. The lower piece which she wore was one, however, to which springs could not easily be added, in consequence of the position of some of the natural teeth, and it was therefore determined to make another effort by making a new piece to maintain the upper in its position by suction. To do this required some nicety in arranging the bite. The lower teeth projected considerably, and it was necessary to reduce the projection of the upper teeth as much as possible, making an edge to edge bite to prevent the denture being pulled down by the upper lip when the patient opened her mouth—a misfortune which the old piece was liable to.

Being anxious to give the delicate fit to be obtained by packing on the model, the piece was made in two vulcanisings, by the method described in my last chapter, but which it may be as well to explain more fully in its application to upper dentures.

A wax base plate was adjusted on the model as for ordinary work, the gold strengthener, previously made, was placed in it to keep the wax from bending whilst being put in and out of the mouth. The two central teeth were then placed upon the wax approximately, tried in the mouth and adjusted, then the lateral and the rest of the teeth two at a time.

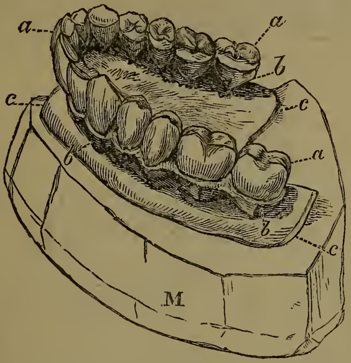
Where there is a difficult front bite, and appearance is a matter of importance, the method of arranging the teeth to the mouth in this way will not I believe be found any loss of time or trouble in the end; it overcomes the difficulty with certainty at that period in the construction of a set when alterations are most easily made. It may not be always necessary, yet I am convinced that no other method of suiting the teeth to the patient's physiognomy is to be compared with it. This method is also the best way of getting the bite where there is not sufficient masticating power, and the articulation between the teeth of upper and lower sets requires particular attention.

All the upper teeth having been arranged on the wax plate in the mouth, the piece was placed on the plaster model and an accurate bite made with a model which had been previously taken of the lower natural and artificial teeth together. The wax upper piece was then removed from the model, plaster poured into the under surface and set with the teeth uppermost in the lower half of a flask. When the plaster was set the whole of the palatal portion of wax, together with the strengthener, was removed, leaving teeth and wax as in Fig. 27.

The upper part of the flask was then put on filled up with plaster, and when this was set the flask reopened and the wax washed out with boiling water. Rubber was then packed in the ordinary way, the flask pressed and screwed together and the piece vulcanised. This produced a piece fitting the model with the teeth in right position and bite, but mounted on a narrow rim of vulcanite, Fig. 27.

The rubber was then roughly filed outside and inside the teeth in two planes which met in a line on the basal surface directly under the teeth, so that its section would appear like *b*, Fig. 29. This line was then reduced, by rough angular cross cuts, into points. Thus we had the teeth held together in their right relative positions by rubber, which, when placed upon the model, indicated by a linear series of points its right place.

Fig. 27.



a, a, a. Arranged row of upper teeth, held in position by a narrow ridge (*b*) of wax first, subsequently vulcanite.

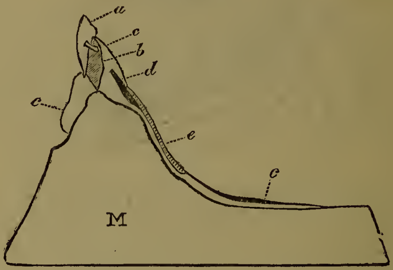
The face of the model was now smeared with the solution of rubber, and a piece of thin sheet vulcanite, cut out by pattern to the shape required, was placed upon it and pressed with the fingers until it adhered closely to the whole of the surface which it was desired to cover.

Complaints have been made to me that the rubber when so put on cannot be got to stick but springs off again. This difficulty will not occur if the chloroform in the solution has been allowed to evaporate, and the rubber is packed hot. A convenient hot bath is made by having a small gas stove on the bench in front of the workman; on which is placed a common saucepan with a clean dinner plate for a cover. Water is boiled in the vessel, and the vulcanite cut in convenient pieces arranged in the plate ready for use.

I prefer Lemale's German rubber for suction uppers; partly because I believe it has not so great a tendency to warp as the light whalebone or bowspring rubbers, if unfortunately it should require a second cooking in consequence of repair or addition being at any future time necessary; but also because it is thinner than any other rubber in the market; which in this method of packing is an advantage.

The pattern of rubber having been stuck in its right position, the vulcanite rim carrying the teeth was placed upon it, and by means of the bite easily adjusted to its right place. The resistance which the soft rubber on the model offered to any slight movement required, having been reduced to a minimum by the hard rubber only resting upon it in a series of points, see Fig. 28.

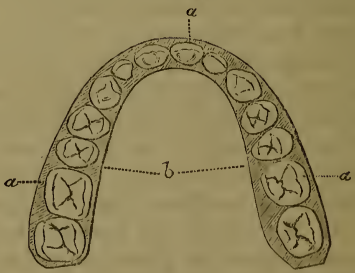
FIG. 28.



To show method of packing suction upper without pressing the model in flasking. *a, a, a.* Teeth held together by *b, b, b,* cooked rubber which has been flasked and pressed. *c, c, c.* First layer of uncooked rubber placed on the model M before *a, b* is placed upon it.

The freshly filed surface of the vulcanite was now smeared with the rubber solution, and the model with teeth in position placed in the bite. Vulcanite was then packed around the necks of the teeth, and everywhere on the outside to fill up the required contour. Model and piece were then removed from the bite frame, and the strengthener adjusted to its place by being warmed and lightly pressed into the soft vulcanite. Rubber was then packed around the attachment pins of the gold, and to fill up the contour inside to the necks of the teeth. The palatal portion of the

FIG. 29.



rubber plate not covered by gold required another layer of thin rubber to bring it flush with the edge of the metal plate, and give it necessary stiffness; any openings at the joinings not easily made plaster tight were stopped with wax. The whole was now smothered in plaster, flasked, vulcanised and completed. It answered very well. For section of complete piece see Fig. 29.

ODONTOLOGICAL SOCIETY.—INJURIOUS EFFECTS OF RED VULCANITE.

The following circular has been issued by the Odontological Society. We commend it to the attention of our readers, and shall be glad to hear from them on the subject.

40, Leicester Square, London, W.C.;
October, 1876.

Sir,—The Committee appointed by the Odontological Society of Great Britain to investigate the local and general injurious effects alleged to have been produced by red vulcanite used for Dental purposes, ask your attention to the following questions; and beg of you, in answering them, to give such particulars only as you can substantiate by reference to notes, or at least by clear and positive recollection of the details of the case, the symptoms of a single case well authenticated being of far more value than those of many cases incompletely recorded.

I remain, yours faithfully,
J. Smith Turner,
Hon. Sec.

Questions.

1. How long and to what extent have you used vulcanite?
2. Has your attention been previously drawn to the subject under investigation?
3. Have you observed any local or constitutional symptoms which you attributed to the use of coloured vulcanite plates?
4. Specify any such symptoms.
5. Have you observed similar symptoms when black vulcanite or metallic plates have been worn?
6. In the case or cases to which you refer, state whether

the plate was used for carrying artificial teeth or for regulating purposes.

7. State, if possible, the sex, age, station, and habits of patient.

8. Were there any unhealthy stumps or teeth remaining, and what was the general condition of the oral mucous membrane?

9. Were parts of the mouth not covered by the plates, healthy or otherwise?

10. What was the general condition of the mouth as to cleanliness?

11. Was there evidence of syphilis or of the use of murcurial medicines?

12. Was a plate of any different material substituted for that which you believed to have originally induced the unfavorable symptoms, and what was the termination of the case?

13. Specify, if possible, the particular rubber used, the method of cooking (with reference to its perfect vulcanisation), and the metal, if any, used in combination with the rubber.

Chemical Department.

SALICYLIC ACID.

Some time ago I wrote two or three notes on the properties of salicylic acid for dental purposes. One of its special weak points appeared to be the fact that it combines instantly with alkalies and becomes practically inert. On further consideration I determined to test whether this objection was as real in practice as in theory, and for this purpose made two samples of tooth powder as follows:

No. 1.	Carbonate of soda	10	parts by weight;
	Powdered liquorice	5	,,
	Prepared chalk	100	,,
	Precipitated ,,	100	,,

No. 2. Same as above, but with the addition of one part or about ½ per cent. of crystallised salicylic acid.

These two were distributed amongst a few friends and the reports were most distinctly in favour of the sample containing salicylic acid, as having by far the greater cleansing power, more especially when used for cleaning artificial dentures. It would appear, therefore, that the rapid combination of salicylic acid is really no objection to its practical use and value.

It will be noted that carbonate of soda is used in the powder. This was added specially to test the salicylic acid when in the presence of a practically free alkali with which I knew it would combine rapidly in the presence of moisture. Carbonate of soda itself I consider a most objectionable addition to a dentifrice and after the results obtained by Dr. Palmer and myself as to the action of alkalies in the mouth, it becomes a grave question whether alkalies, unless firmly in combination, are admissable for cleansing purposes under any circumstances. In making a dentifrice of this kind for use, I should replace the carbonate of soda with borax.

THOS. FLETCHER.

Hospital Reports and Case-Book.

THE DENTAL HOSPITAL OF LONDON.

THE new calendar for 1877 being in preparation the Dean will be obliged if those gentlemen in whose diplomas, appointments, or addresses there is any alteration will notify the same to him in writing as soon as possible.

November 30th, 1876.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM OCTOBER 1ST TO OCTOBER 31ST, 1876.

Extractions	Children under 14	502
	Adults	623
Under Nitrous Oxide		300
Gold Stoppings		179
White Foil ditto		48
Plastic ditto		245
Irregularities of the Teeth treated mechanically		13
Miscellaneous Cases		144
Advice Cases		126
	Total	2180

JAMES MERSON,
Dental House-Surgeon.

British Journal of Dental Science.

LONDON, DECEMBER, 1876.

Following upon our editorial article of last November we earnestly commend to the attention of our readers the letters that appear in this issue from Mr. Edwin Saunders and Mr. Balkwill, which raise many questions well worthy of the deepest consideration.

With Mr. Balkwill, neither we, nor many others, can shut our eyes to the fact that the Odontological Society *is* in a state of ill-health, which may have the most serious results, but we do not agree with him either as to the cause of this ill-health, nor as to the method of its cure, although we feel convinced that if it is to be cured at all, it will, to a great extent, be assisted by the free ventilation of opinions upon the subject. For our part we have much more sympathy with the views expressed by Mr. Edwin Saunders, whose letter is, however, more cautionary, than suggestive of any scheme for the improvement of the present state of affairs. Whilst upholding, as we have ever done, the position and value of the L.D.S. as the sole qualification at present existing which indicates that a Dentist is fit to practise his specialty, we would far rather see it more intimately associated with the College of Surgeons, —or as we hope may ultimately be the case, with the general body of medical practitioners, through the conjoint scheme—than drawn from its connection therewith by any plan for placing it on an independent footing. Mr. Saunders in his letter well and clearly points out the dangers that encompass the profession, and we cannot but feel that they are only to be averted by prompt and judicious action, on the one side by the Odontological Society, and on the other by the Council of the Dental Reform Committee. The Odontological Society without entering upon Dental politics can give a very good bias to them, by a judicious revision of its rules of admission, which could without difficulty be so framed as to recognise the claims of the three opposing parties represented by the M.R.C.S., the L.D.S., and the unqualified practitioners. Utopian as this idea seems we do not deem it altogether impossible. The conflicting interests that have arisen of late years, render some reorganisation of the Odontological Society imperatively necessary, and it would be far better for all parties to unite in seeking to bring this about rather than by starting other new societies, still further disunite our already distracted specialty. As for the Dental Reform Committee it is high time that the executive council thereof, should have something tangible to lay before not only the general committee, but the large body of subscribers who have waited so long and patiently, and who are certainly entitled after such a lapse of time, to some published information as to the progress made.

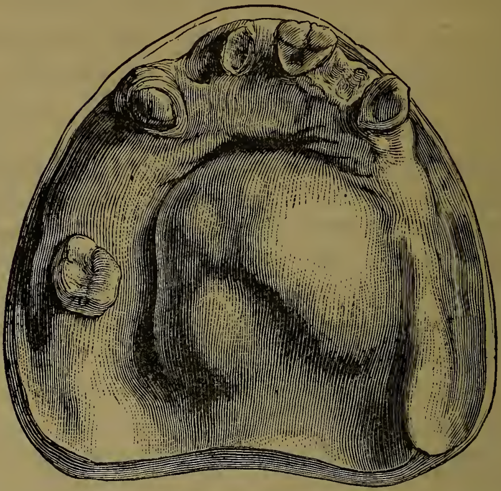
Literary Notices and Selections.

SARCOMA OF THE HARD PALATE; REMOVAL; RECOVERY.

(Under the care of Mr. CHRISTOPHER HEATH, University College Hospital.)

PRIMARY tumours of the hard palate are not very common, and are mostly of an amyloid character. In his work on the 'Diseases of the Jaws, Mr. Heath refers to some cases of the kind, and also to some of epithelioma. We may note that the case of sarcoma of the palate reported in the "Mirror" of the 'Lancet' of April 15th, 1876, is still living, and that the patient has been able to dispense with his tracheal tube. The notes of the following case were taken by Mr. A. P. Gould, surgical registrar.

S. E—, aged forty-eight, was admitted on August 29th, 1876. She stated that she had noticed a small lump on the hard palate since childhood, but it gave her no inconvenience until about two years ago, when it began to enlarge, and from this time it steadily grew, and soon began to interfere with her articulation. Her health had, however, always been good. There was no history of tumour in the family. The tumour filled up the hollow in the hard palate, being more attached to the left side, where the mucous membrane was continued directly over it, than on the right, where a probe could be passed between the tumour and the palate. It was about the size of a horse-chestnut, slightly lobed on the surface, elastic, but not fluctuating; the mucous membrane over it was not adherent to it, and was normal in appearance. The tumour moved slightly over the bone. There were no enlarged lymphatic glands in the neck.



The accompanying woodcut was made from a plaster cast taken by a dentist.

On Sept. 6th Mr. Heath removed the tumour by making an incision round the left side of the growth, which then readily shelled out from a distinct capsule; the capsule itself was afterwards removed with the fingers. Bleeding was stopped by the actual cautery. The wound granulated, but left a part of the hard palate bare. A small portion of this was loose when the patient left the hospital, and she stated that when she drank fluid came into the left nostril. The patient left the hospital on Sept. 30th.

The tumour was examined microscopically, and found to be a small round-celled sarcoma.—*Lancet.*

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Monthly Meeting, Monday, Nov. 6th, 1876.

Charles Vasey, Esq., President, in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. Alfred Canton was proposed by the Council for the honorary membership on his retirement from practice.

The following applications for membership have been received by the Council:—

Mr. J. R. Brownlie, L.D.S., Glasgow, non-resident; Mr. J. Moore Lipscombe, L.D.S., Clarke Street, Kilmarnock, non-resident; Mr. Henry B. Mason, L.D.S., 3, Bedford Circus, Exeter, non-resident.

Mr. White observed upon the frequent difficulty of preventing regulated teeth from returning to their original position. In one case of projecting upper teeth, although he had made the patient wear a plate two years, yet they projected again nearly a quarter of an inch two years after the discontinuance of the plate.

Mr. Fothergill showed some models of a regulating case, in which all the upper incisors closed within the lower, the canines closed outside the lower, and the laterals were quite close to the bicuspids.

Mr. Hutchinson presented models of some curious cases of dentition. They were very simple, and the reason he brought them was in the hope that members meeting with similar cases might be induced to send them to swell the contents of the museum, where they would be more useful than when kept in the cupboards of private practitioners. The first was a case of a geminated lateral incisor, the second of a supernumerary tooth between two centrals, the mother and aunt of the patient having both a similar tooth. The third case was an example of long persistence of the second temporary molar.

Mr. Turner stated that Mr. Macadam, of Hereford, had sent to the Society a drill for use with the burring engine; and Mr. Bruce, of Valparaiso, specimens of old-fashioned mineral teeth. Observing on Mr. Fothergill's models a brown india-rubber ring, he said he believed they could get much better rings by cutting them off of india-rubber tubes; they would lie better round the teeth, they were tougher, and would last longer.

Mr. Coleman preferred rings cut from pieces of rubber dam, which were purer, more elastic, and which, as a rule, would last longer than any vulcanised rubber cut from tubes.

Mr. Hutchinson said pure rubber tubing was made, and could be obtained in all sizes, from the thickness of a needle to the three-quarter-inch gaspipe.

Mr. Moon said that in some cases where there was a tendency to underhanging, such tendency might be successfully checked by filing the labial surface of the lower and the lingual surface of the upper temporary canines, so as to form inclined planes, which would direct the lower jaw backwards.

Mr. Pollock then read a paper on the "Alveolar Abscess dependent on Diseased Teeth."

Mr. Moon said that one cause leading to the formation of pus in the jaws was the rupture of the nutrient vessels of the pulp as they entered the root of a tooth. He mentioned a case that occurred at Guy's Hospital, where Dr. Goodhart on the post-mortem table traced the cause of death to alveolar abscess about a lower temporary molar. Decay in the tooth resulting in alveolar abscess was followed by suppuration in the inferior dental canal, acute periostitis of one side of the lower jaw, extension of suppurative inflammation by the spheno-maxillary fossa to the orbit, suppuration in both orbits, osteitis of the vault of the skull, pyæmia, and death. He believed the question whether overlooked alveolar abscess might not in some cases be the real origin of pyæmia was worthy of consideration. He did not consider that extraction was called for in all these cases, especially in the case of upper teeth; in many cases it sufficed to drill a fine vent canal into the pulp chamber after it and the alveolar abscess had been thoroughly syringed out.

Mr. Charles Tomes said Vedle, in his 'Pathology of the Teeth,' records a case of abscess dependent on some lesion of the lower teeth. The matter burrowed out between the periosteum and the bone and ran up as far as the condyles. Then it made its way up to the base of the sphenoid, and bathed that in pus, some portions of the pus finding its way into the interior of the skull and causing death. He echoed Mr. Moon's protest against extraction of the teeth being in all cases necessary. In cases of abscess of the antrum, nine times out of ten they would do the best thing for their patients by removing the tooth and enlarging the opening alreading probably existing between one of the roots of the teeth and the antrum, and so clearing it out. But it was quite possible to treat a case of abscess of the antrum without sacrificing the tooth, and without making any other perforations. He saw in New York a case of seven or eight weeks' standing, in which the discharge from the nostril was so offensive that people could hardly stay in the room with the patient, and which was treated without extraction or perforation of the antrum. The abscess depended on alveolar abscess at the root of the second bicuspid. The tooth had a short straight root and a round and tolerably patent canal, and that having been enlarged disinfectant lotions were syringed into the antrum. The opening into the nose was also large and patent, so that the antrum could be effectually syringed. An important point to be remembered in forming a diagnosis was this, that there might be sometimes rather extensive mischief dependent originally upon alveolar abscess in which the tooth itself—the original source of the evil—had become healthy for the the time being at all events.

Mr. Coleman said, among the cases Mr. Pollock had brought forward none were more interesting, because more troublesome and obscure, than some of those cases of abscess occurring from misplaced or impacted wisdom teeth. There was at present at St. Bartholomew's a patient admitted with symptoms apparently pointing to some tumour existing in the brain. On the left side of the neck there was a hard swelling, no doubt pressing on the common carotid; it appeared to one of the house surgeons that this might probably have a dental origin, and the second molar, though apparently sound, was removed. It proved to be necrosed, and the membrane was infiltrated with purulent fluid. The operation having been performed but recently they had at present no direct result, but it would, of course, be a very interesting case if it turned out that the whole of the apparently very serious mischief was so trivial in its character and had been caused by a defective tooth. An extremely interesting case of impacted wisdom teeth came some few years ago under the notice of Sir James Paget, in which a patient had for twenty-four years been treated for necrosis of the jaw. Sir James fancied that he felt something three quarters of an inch below the surface that was harder than necrosed bone and felt like enamel. The tooth was removed, and the patient perfectly recovered. They must not take too great credit to themselves when they meet with these cases dependent upon the teeth, but perhaps they should take discredit to themselves in the same degree when they saw cases in which they were led to believe the teeth were in fault and find out after all that the suffering was due to some other cause.

Mr. Gaddes wished to ask Mr. Pollock if he agreed with Salter in ascribing the causes of alveolar abscess opening externally to a long fang, a shallow sulcus, or the abscess-sac burrowing deeply.

The President, with reference to Hunter's remark as to abscess depending on canine teeth, said he had seen many abscesses arising from the bicuspids and molars, but did not remember having seen one from the canines.

Mr. Sewill mentioned a case that he had recorded in the 'Transactions,' in which an abscess in the canthus of the eye assimilating very closely to lateral fistula, and after a constant discharge of pus from the opening for many months, was cured by extraction of the canine. He also mentioned some cases that occurred at Charing Cross Hospital where enlargement of the glands of the neck had taken place, very closely simulating scrofulous disease. In one remarkable case the disease was cured by the extraction of a decayed tooth after the patient had been treated for scrofula for a long period. One error into which the public were apt to fall was that harm would arise if a tooth was extracted while suppuration was proceeding, and so they waited until the swelling went down. The fact was, very often while the swelling was coming up and going down a fistulous orifice externally was formed, or they might have necrosis of the jaw, whereas if the cause of the disease was removed at once the whole mischief would subside.

Mr. Turner said the importance that Hunter attached to the position of the fangs was due not so much to their length as to their relative position to the mucous membrane, uniting the cheek with the alveolar process; that when the fangs rose beyond the mucous membrane and there was any disturbance they were more likely to have alveolar abscess burrowing outwards. Though the fangs of canines were long they were not in that predicament, and therefore for Hunter's reasons they would not look there for an abscess such as he described. Also it was common for abscesses from the fangs of canine teeth to find a passage into the nares. Following up Mr. Coleman's observations he said that a year or two ago he was called upon to remove some roots and to perforate the antrum for a lady supposed to be suffering from disease of the antrum. She had nothing of the kind, but was affected with what appeared to be a chronic inflammation of the nasal membrane. She derived no relief from the opening into the antrum, but had to be treated for chronic roseola. The case was approached with confidence, and the roots removed and antrum perforated with every prospect of success, but the treatment was an utter failure. They were frequently called upon to remove teeth for these obscure diseases when they need not be sacrificed, and were often able in healthy subjects to save teeth which in bygone times would have been at once removed.

The President said he was afraid he had not made himself quite understood with reference to Hunter's observations. He did not mean to imply that cases of perforation through the cheek from canine teeth never occurred, but that having seen many cases he had not seen one of the kind. Abscesses from canine teeth he had seen in large numbers, but not with perforating sinus through the face, whereas John Hunter spoke of them as if they were very common indeed on account of the length of the tooth.

Mr. David Hepburn mentioned the case of a man who visited the Dental Hospital some months ago with a large and brawny swelling on one side of the neck extending from the ear to the clavicle, excessively hard and brawny. The result showed that the swelling reached from the second lower molar and the lower wisdom tooth.

Mr. Pollock, in reply, said he had learned some things from the discussion of which he had not been aware previously. He had regarded teeth merely as a surgeon, and not as a Dentist, not attaching so much value to them as many of his audience apparently did, seeing that they were sometimes such very troublesome customers. He should possibly modify his practice a little in future and send for some of his friends to drill the teeth rather than have them extracted. He mentioned that in one of the cases to which he had alluded, in which a lady's eye was prominent and there was occasionally double vision, the tooth had already been drilled. In reply to Mr. Gaddes he said he simply spoke as a surgeon and really did not go into the pathology of alveolar abscess. He took for granted all that had been written and said about it, and bowed with submission to their opinions.

The thanks of the Society were accorded to Mr. Pollock and the other speakers and the Society adjourned.

DENTAL STUDENTS' SOCIETY, 40, LEICESTER SQUARE.

Ordinary Meeting, held November 13th, 1876.

David Hepburn, Esq., L.D.S., President, in the Chair.

The minutes of the previous meeting were read and confirmed.

The gentlemen proposed at the last meeting were balloted for and elected members of the Society.

Mr. Jones was proposed as a member of the Society.

Mr. G. H. Harding, L.D.S., showed a specimen of united teeth; also some microscopic specimens of fangs united by cementum.

The President then called on Mr. Ackery for his paper on "Dental Exostosis."

Mr. President and Gentlemen,—Dental exostosis is a disease which from its frequent occurrence has probably come under the notice of us all, and the subject may seem to be robbed of some of the interest usually attached to a paper of this class by the following facts, viz., the difficulty of diagnosing the disease in its earlier stages, and the one and only method of treatment open to us when once that condition has been fully established. Should not, however, these very reasons induce us with the more earnestness to enter into the observation and consideration of the several attendant symptoms in the hope that the more perfect knowledge thus obtained may pave the way to an earlier diagnosis, and a more conservative, if not preventive, treatment; always bearing in mind the old proverb "Prevention is better than cure."

Dental exostosis may be defined as an abnormal development of a normal tissue, the cementum, the new growth differing in few respects from the original layer upon which it is deposited. Before, therefore, we enter into the consideration of the pathological conditions met with in this disease, it may be well as briefly as possible to run over the development of the human tooth, and the normal conditions and structures of the cementum and periosteum (that membrane which not only invests the fangs of the teeth, but also lines the socket in which it is situated), both of which play such important parts in the production of this hypertrophy.

During the second month of intra-uterine life the margin of the jaw presents a longitudinal furrow, the dental groove, which is filled with epithelium in such a manner that from the surface the groove is not apparent, but may be readily seen in a transverse section. At the bottom of this groove a continuous process of epithelium dips down into the submucous tissue below, throughout the entire arch of the jaw, and at intervals opaque spots may be seen corresponding to the number and position of the future teeth.

This opaque spot in the submucous tissue (for we may take one as the example of them all), is due to the increased nutrition of the part, and as it grows forms itself into a papilla and is designated the "dentine germ." Simultaneously with this appearance the process of epithelium above becomes inflected, and forms a cap over the papilla and is called the "enamel organ." The dentine germ now sends off lateral branches, and encircling the enamel organ severs its connection with the oral epithelium. Previous to this separation the enamel organ has budded off a process to form the enamel germ of the permanent tooth. The rudiments of the future tooth are now enclosed in a sort of capsule, the "dental sac," formed by prolongations from the dentine germ. From the inner surface of this sac the cementum is formed, whilst the outer layer is developed into the periosteum.

Whether this periosteum which invests the fang of the tooth also lines the socket, or whether that office is performed by the periosteum of the jaw-bone seems to be a matter of controversy, and does not materially affect the consideration of our subject.

The cementum or crusta petrosa is developed from the inner surface of the dental sac, not as some have supposed by the calcification of the sac itself, but the inner surface being provided with a rich network of vessels furnishes a soft blastema in which nucleated cells become developed and quickly ossify. As the fang lengthens new bony scales are formed from above downwards, and coalesce into a simple layer upon which new material is deposited until the required thickness is laid down. Each individual osteoblast calcifies from without inwards until by entire calcification the substance of the cementum is formed. Should, however, this process be checked in any way, the centres of the cells may be left as irregular portions of uncalcified matrix or lacunæ. Not only are the centres of the osteoblasts sometimes left unobliterated, but clusters are left not calcified even at their extremities, thus giving rise to what are termed "encapsuled lacunæ." A lacuna, then, in the recent state is not an empty space, but is entirely filled with uncalcified matrix.

The cement or tooth-bone, as it is sometimes styled, is very like true bone, but contains a larger percentage of earthy matter, namely, 70 per cent. The thickness is subject to variation, and the substance is liable to absorption and re-deposition. When very thin, cementum appears quite void of structure, but as soon as any thickness is attained lacunæ and canaliculi make their appearance in great abundance, but even then the outermost layer is usually destitute of lacunæ. These lacunæ are, for the most part, arranged in a laminated form, with their long axes parallel to the length of the tooth-fang. The canaliculi of neighbouring lacunæ anastomose freely with one another, and occasionally with the terminal branches of the dentinal tubules. Though crusta petrosa is normally non-vascular, specimens are not wanting in which vascular canals are to be seen, and occasionally lacunæ arranged in concentric circles round them, giving the idea of an Haversian system. It is not necessary to go into the structure of true bone to show the points in which the two structures resemble each other, as they are sufficiently obvious.

The dental periosteum is a tough membrane, highly vascular, exceedingly sensitive, and is composed of three layers. The outermost of these consists of decussating fasciculi of connective tissue; internal to which is a layer termed the "cambium," consisting of roundish cells in a matrix of connective tissue; whilst in close contact with the cementum is the osteoblast layer, in which are much larger cells frequently possessing processes.

In thickness the periosteum varies from $\frac{1}{250}$th to $\frac{2}{250}$ths of an inch. In young subjects when actively engaged in forming the cementum it is comparatively thick, whilst in the adult it is sometimes scarcely perceptible, and then again in old age we find it increasing in thickness.

The dental periosteum (which, as I have before stated, is developed from the outer layer of the "dental sac"), differs from the periosteum of ordinary bone in the non-existence of elastic fibres and the entire absence of fat-cells. The various structures of the human tooth-fang have not inaptly been likened to those of an ordinary long bone. Thus, a transverse section of a long bone shows from within outwards, 1, a central canal filled with nutrient marrow; 2, a mass of structure perforated by numerous foramina; 3, an external harder and more compact tissue; 4, a periosteal layer in which nerves and blood-vessels ramify.

In a transverse section of tooth-fang we have, 1, a central canal filled with living pulp which serves to nourish the other structures; 2, dentine—a mass perforated by many tubes; 3, cementum—very like true compact bone; 4, periosteum—in which nerves and vessels ramify, and which differs in two points only from that which invests true bone.

Other points of similarity might be mentioned, but these will suffice. As in structure so in pathological changes, we may trace like affections brought about by similar causes. Having considered the development and normal structure of the cementum and periosteum, let us now note the pathological changes to which they are subject.

The teeth are articulated in the jaw by what is termed gomphosis, that is to say, they are wedged in like nails in a piece of wood, and are retained in position by the close adaptation of the alveoli and the adhesion of the alveolar dentar periosteum which acts as a cushion to prevent any undue jarring of the teeth in their sockets.

The dental pulp and periosteum both receive their nervous and blood supply from the same source, and it therefore follows that any lesion causing inflammation of the former may cause the latter to become inflamed also. The causes of exostosis are various, and amongst the most ordinary may be mentioned caries, and the wearing down of the crown of the tooth by attrition—both of which cause irritation through the medium of the pulp. It is sometimes caused by the loss of opposing or adjacent teeth, leaving the important function of mastication to be performed by a solitary tooth, and it not unfrequently results from the accumulation of tartar or other foreign bodies which act as direct irritants to the periosteum.

Other causes may and have been observed, but in some cases the origin seems remarkably obscure, and of such cases Mr. Shelley pithily remarks that "the origin of the disease remains veiled in mystery, and has therefore been referred to 'constitutional tendency,' the meaning of which, being obscure and mysterious, well accords with the cause of the disease, but explains nothing." The consequence of these various forms of irritation is inflammation, either chronic or acute.

The local symptoms of inflammation are practically constant in both conditions, but in chronic cases the action is less severe, and the consequent results very different. The constitutional symptoms are the same as those attendant upon inflammation in any other tissue, and are seldom of sufficient severity to call for special attention, but we should never fail to remember in the treatment of cases that may come under our notice that local symptoms may be much alleviated, and often entirely checked by constitutional treatment.

Inflammation though at first acute may assume a chronic form, and chronic inflammation may at almost any period become acute. If left to itself acute inflammation quickly runs its course, and terminates in alveolar abscess and loss of the tooth, if not in a more serious manner, namely, necrosis of a portion of the alveolus.

There are few parts of the body more subject to chronic inflammation than the dental periosteum, and it is the slight but continued form that so often leads to exostosis. The mode of increase and manner of deposit of the new cementum may now be considered with advantage. If we examine, immediately after its removal, the periosteum of a tooth that has been the subject of long-continued irritation, we shall find it thickened, more vascular, and with slimy threads adhering to its surface, which we call coagulable lymph. This lymph on further investigation may be shown to consist of three layers. On the exterior is a semi-diffluent layer, consisting of spherical bodies not unlike the exudation corpuscles seen in recently inflamed parts, and in addition to this small masses of blastema. Beneath this is a fibrous layer in course of formation displaying the characteristic tress-like undulations, and amongst this network oval corpuscles with fibrous prolongations may be made out.

The innermost layer is strongly adherent to the fang of the tooth, and retains the fibrous appearance interspersed with cells analogous to osteoblasts. This layer is much denser, and gradually assumes the characters of the fully-developed tissue, so that portions of osseous matter may be seen extending from the cementum into the thickened periosteum. These cells, seen in the various layers, are similar, but in different stages of development. Thus, we may trace them from being bi-nucleated and faintly granular until they become so filled with osseous granules that the nuclei are almost entirely shut out from view. During a period of rest the layer nearest the fang becomes calcified, and as fresh attacks take place from time to time new layers are deposited and the hypertrophy reaches an extraordinary magnitude. As the periosteum becomes thickened it provides a space for itself by absorbing the alveolus in its path, and when the bony tissue is formed the space thus made is filled up with the new cementum.

Exostosis, as it usually appears, is simply an increase of cementum distinctly laminated—abounding with lacunæ—and non-vascular; but, as I have before mentioned, canals have occasionally been found. Mr. Salter, however, relates a case of vascular or cancellated exostosis. "The tooth, a superior bicuspid, exhibited no abnormality on the crown save caries of the lateral surface. On the lower half of the tooth-fang there was a considerable incrusting of hypertrophied tooth-bone. The exostosis, instead of presenting a smooth dense surface or, at most, an undulating surface, as in the usual forms of the disease, displayed a loose, porous, friable exterior, opaque and dead white. On section the crusta petrosa was seen to be very porous and had a cancellated appearance in consequence of numerous and large vascular canals being cut into. The canals were larger near the surface, and the structure became denser from without inwards."

There is great variety in the quantity and manner of distribution of the new tissue which forms exostosis. In the more usual form the hypertrophy is either general or confined to the apex or lower third of the fang, and in some few cases has been known to enter the apical foramen.

Another not unfrequent form is that of a nipple-like projection of the fang caused by the new tissue terminating abruptly before reaching the apex of the tooth. Stumps are frequently found affected with exostosis, some with a bulbous mass at the tip, very like a turnip in form, others with one side only augmented by the deposit.

We also find small isolated excrescences on the sides of the fang, and Mr. Salter says that this is the form attended with the severest and most painful results, and that he has seen a sufficient number of cases to lead him to believe that this is a distinct form of disease. Hypertrophy may continue to such an extent that the septa between the fangs of the same or of neighbouring teeth may become absorbed and the fangs fused together by the deposition of new material.

Recorded case of union of one or more teeth by exostosis have, I believe, always been confined to the molars. The disease may attack any tooth, but the incisors and canines in both jaws seem to suffer less than the other teeth. I have not yet seen or heard of a single case of exostosis affecting the temporary teeth. With regard to symptoms, we are again left without any characteristic or constant feature. At times we find exostosis to have existed without any noticeable symptoms, whilst at others it has been accompanied by violent pains, not only in all the teeth, but in the face, body, and arms.

Mr. Salter mentions a case of intense neuralgia of the whole body caused by small nodules of exostosis. One by one the teeth were removed, each time with temporary relief; but before long the trying symptoms returned, and it was not until all the teeth had been sacrificed that the patient was entlrely free from pain. Many patients have been under treatment for tic douleureux for months without relief, but as soon as the teeth were removed speedy recovery followed.

Mr. Tomes relates a case under his care in Middlesex Hospital in which a lad admitted for epilepsy was entirely cured by the removal of exostosed stumps.

Mr. Fox gives a case in which the palpebræ of the eye were affected and the sight lost for two months. The most painful tooth was extracted, and in two days the eye could be opened, but the symptoms recurred. This patient also had to submit to the loss of all the teeth before perfect immunity from pain could be obtained and free vision restored.

In all cases in which we are led to suspect this disease, it is our duty to make the most searching examination, to stop all cavities, however minute, to relieve all undue pressure, and remove tartar or other bodies that may act as irritants.

At other times careful percussion may reveal the offender, but if we cannot at once arrive at a satisfactory conclusion, it is better to defer settling on the method of treatment until the symptoms become more marked. We must also be prepared to arrive at a diagnosis irrespective of statements from the patient, which frequently mislead, and having thus satisfied ourselves of the nature of the mischief, we may without the least hesitation proceed to extract the hypertrophied member. It is this careful consideration of our patients' welfare that will beget in them that confidence which is so necessary to us in the practice of the profession which we have all espoused.

The treatment, then, may be summed up as follows:—In the earlier stages, 1, remove the cause of irritation, such as tartar, &c.; 2, modify the local action by cold counter-irritants; 3, give specific antidotes, purgatives, &c.

When the bone growth has actually formed and gives rise to pain, the only treatment is removal, which is often rendered very painful to the patient and difficult to the operator owing to the close adaptation of the alveoli around a more or less bulbous fang.

In conclusion, gentlemen, let me thank you for the kind attention and patient hearing you have given me. I have endeavoured to make what is of necessity a dry subject as interesting as possible, and with that view have prepared a few sections for the microscope, and collected some specimens of exostosis in its various forms which, although not as numerous or as marked as I could have wished, will serve fairly well to illustrate some of the points on which I have touched. I acceded to the request to write this paper solely because I felt that to enjoy the benefits of this Society, and not to do one's best to assist in its work when called upon to do so, was hardly fair; and if I have succeeded in interesting you in any way, I shall feel doubly repaid for whatever times and pains I have taken to prepare it.

An animated discussion took place at the conclusion of the paper, in which Messrs. Matheson, Underwood, Bell, Williams, Hepburn, and Harding, took part.

Mr. Ackery having replied, and a cordial vote of thanks having been accorded him for his excellent paper, the meeting terminated.

Miscellanea.

DENTAL EXAMINATION, JUNE, 1876.

To the Editor of the 'British Journal of Dental Science.

Dear Sir,—In accordance with the wish expressed in your Students' Number, I send you as many of the questions in anatomy as I can recollect, which were asked me by Mr. Savory at the last Dental examination. Some of them, I think, are not included in your published list. I would suggest that before another Students' Number is published the list of questions might be revised with advantage.
I am, &c.,

3, Bedford Circus, Exeter; Nov. 22nd, 1876. Henry B. Mason.

Questions on Anatomy.

Examiner, Mr. Savory.

What bones form the base of the skull?

What the several fossæ, and their contents?

On what do the posterior lobes of the cerebrum lie?

What important structure do you find, in the neck, behind the carotid vessels, but outside the sheath?

Describe the appearance of the sympathetic in the neck. Number of ganglia. Largest, smallest, and opposite which vertebra is the superior cervical ganglion situated?

Given the boundaries of the submaxillary triangle, to name any structures you know contained in it.

Facial artery, branches, and course of descending pharyngeal and tonsillar arteries; relation of facial vein and artery.

Name structures contained within the carotid sheath, and give their relations.

How do the venous sinuses within the skull differ from ordinary veins?

Given inferior turbinated bone, asked what bone it is, and whether right or left.

Surgery.

1. Describe the operation for "harelip."
2. How would you perform "staphyloraphy?"
3. When a child accidentally swallows hot water, what is the most frequent cause of death?
4. Describe a polypus of the nose and mode of treatment.

Anatomy.

1. Give the arrangement of the fibres of the gasserian ganglion.

John Wood, Esq., Dentist, Dumfries, after having already presided as a magistrate during the full term of three years, has been re-elected a magistrate of the burgh and Justice of the Peace for the county of Dumfries.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

We are pleased to have to report that Mr. Kyan, a student at the Dental Hospital of London and son of John Howard Kyan, Esq., L.D.S., of Preston, having passed the requisite examination on the 10th, 11th, and 12th Nov., 1876, received his diploma as a member of the Royal College of Surgeons.

APPOINTMENT.

Mr. Felix H. Weiss, L.D.S., has been appointed Assistant Dental Surgeon to the National Dental Hospital.

DENTAL MANUFACTURING COMPANY.

Mr. Brewster, the energetic manager of this Company, has forwarded to us some specimens of molars and bicuspids for shallow cases, improved as we suggested in our last issue, that is, with the groove more to the front. We have also to express our satisfaction with a novel and pleasing looking set of hand spittoons and hot and cold water jugs, which is known by the name of the swan pattern. Treated in this way such disagreeable adjuncts to the operating room look as innocent and unrepulsive as it is possible to make them; we allude especially to the spittoon.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

TRANSACTIONS OF THE ODONTOLOGICAL SOCIETY.

To the Editor of the 'British Journal of Dental Science.'

Sir,—I don't know what you may mean by "seeming" and "appearing" in your last editorial, but certainly the November issue of the Odontological 'Transactions' does a great deal more than *seem*, to be no credit to any scientific society; it abounds in errors, from the first slip where excellent Mr. Brownlie is made to appear as a "Brownbi," to the nonsense poor Mr. Coleman is made to utter, where he represents a patient with fistula in ano consulting a Dentist as a special practitioner, and *because* the patient has fistula in ano, *they* would very naturally look at his teeth, and if the teeth had anything to do with *it* ("fistula in ano") they might find some carious teeth, &c.; and so on to the end of the chapter. It is not pleasant either to think of our American cousins reading our report of germinated teeth three times repeated in nine lines; *six* incisors are twice spoken of; I believe the depôts give a card of four incisors and two canines and call them *six incisors.*

Mr. Coleman again is left in a very constricted condition with "a ring of that kind round the head," whilst our unfortunate President is left floundering about with Mr. Ash's teeth "that belong to a bygone age," and a canine tooth that he undertook to bring forward but evidently did not, or he would have said so. Now, I do not wish to blame either the speakers, the printers, or even the editor, whoever he may be, but the *system* under which the society is managed, that could allow such a careless state of things to exist, which certainly culminates when, notwithstanding the numerous members of the society who could write on

Dentistry, the secretaries are obliged to apply to a good-natured surgeon to give them a series of extracts from Dental works they are already conversant with, and call it the paper of the evening. I am, &c.,

A Disgusted Member.

THE ODONTOLOGICAL SOCIETY AND THE PROFESSION.

To the Editor of the 'British Journal of Dental Science.'

Sir,—In your last issue, in the editorial article, you remark, "Many years ago an endeavour was made to insist upon the possession of the L.D.S. as a *sine quâ non* for all members of the (Odontological) Society," and you go on to ask, "Is it not time now to bring about some such recognition of the Society's own child, seeing that another society has come into existence which practically ignores the existence of that special diploma?" To this very important question, based upon this serious ground, I think there can be but one response. The time has surely come; but it is imperative that such a regulation should be well considered, and made calmly, wisely, and with all circumspection. Politically our profession is passing through a crisis of unexampled severity, being attacked from two opposite directions, by forces which may be distinguished as ultra-conservative and ultra-radical. The former (if they are still to be regarded as Surgeon Dentists), by laying undue emphasis upon the surgeon and sinking the Dentist, become practically detached from the great body of the profession, which left to itself might seek other and less desirable organization; while the latter, by bringing the L.D.S. into undue prominence, threaten to widen the breach between them-and the great surgical body. Of the two dangers the former would appear to be the less serious, inasmuch as, though at present they fail to represent the profession, if for no other reason, simply from paucity of numbers, yet the time may come (as all well-wishers may be allowed to hope it may) when the possession of the L.D.S. will, as a rule, be accompanied by the diploma for general surgery. The advent of such a state of things would, indeed, be a great day for our profession, and would effectually and at once dispose of the difficulties about registration and the repression, so far as such repression is practicable, of illicit and unauthorised practice. Then all that could be alleged against the new association would be that it was premature, and being premature was an unnecessary slight passed upon many worthy and meritorious members of the profession. But the dangers with which we are threatened, if I do not misread the signs of the times, from the other party are more portentous, and the consequences of their policy appear at once disastrous and irreparable. To attach so much importance to the L.D.S. as to make it a *sine quá non* to the exclusion of the M.R.C.S. is to build up a wall of separation between ourselves and the Royal College of Surgeons, and to alienate the good feeling and sympathy of that august body, which, having by an unparalleled concession admitted us within the domain of surgery, have become entitled to our esteem and gratitude. Let us look fairly at the facts and frankly make acknowledgment of two things—1st. That our position is incomparably better and higher in our association with the Royal College of Surgeons than it could be as an independent body; and 2nd. That as the diplomata of the M.R.C.S. and of the L.D.S. must be admitted (as is abundantly evident from a copmarison of the examination papers) to stand in the relation of major and minor, to frame such rules as should exclude the former would be at once impolitic, suicidal, and futile. The man who has qualified himself to exercise his skill and science over the whole vast field of surgery is surely not to be tabooed from a small department if (improbable and rare contingency) he be disposed to labour therein. From the nature of things there will always be a wide gulf—rarely indeed passed over—between the knife and the forceps, facility with the one being for the most part incompatible with facility with the other. The President of the College of Physicians will not go to the President of the College of Surgeons for the aid which one of our own body can more effectually give, nor will the surgeons who condescend to the practice of Dental Surgery (as it were under protest) be called to an accident in the hunting field or to a case of strangulated hernia. The value and utility of our speciality are fully recognised both by the medical profession and the public, and there is little ground to apprehend an invasion of the former into our ranks. Our clear duty, as it is also our true policy, is to stand side by side with them in solid phalanx, to the discomfiture and discouragement of the dishonest and the unqualified.

I am, &c., Edwin Saunders.

ILLNESS OF THE ODONTOLOGICAL SOCIETY.

To the Editor of the 'British Journal of Dental Science.'

Dear Sir.—I was sorry not to have met you at the Odontological Society's meeting at the beginning of the month; and still more so that I could not shut my eyes and ears to the fact that the Society was in ill-health, which might have the most serious results.

Having a great affection for the Odontological Society, remembering well its commencement and the establishment of the examination for L.D.S.; as both took place at the time I was entering the profession, will you allow me to express myself on the subject. For it seems to me that a time is come when some change is about to be made which may seriously affect the future well-being of the profession, and when it may not be altogether impertinent for those who have opinions to state them.

I think much of the mischief has arisen from the conditions of our connection with the College of Surgeons. When there was no recognised degree or entrance into our profession, many of those who had most means and ability, or whose residence in London made it comparatively easy for them, became members of the College of Surgeons as a recognised title in a profession akin to their own. When it became desirable to organise the Dental profession, the attachment which these men had formed for the College of Surgeons was so strong that they could not bear the idea of being separated from it. They were too strong for the opposition which was raised to them and carried their point. The consequences which I take it followed were that the College of Surgeons was too strong for the Odontological Society, which was therefore obliged to relinquish its proper position as director of the education of the young members and managers of their examination for and entrance into the profession; so that to avoid an undignified position the Odontological Society had to retire into the position of a purely scientific body.

The College of Surgeons were either jealous, indifferent, or ignorant of the requirements and interests of the charge entrusted to them; and as a result the L.D.S. has not been a satisfactory diploma. The Odontological Society has been emasculated and the L.D.S. has not attained that respect or adoption which would have been the result of healthy action.

The medical profession have to undertake the responsibility of life and death, perhaps, as often as we have to deal with a bad case of alveolar abscess. They have an amount and intensity of responsibility on their shoulders to which we can lay no claim; and they have provided the education to meet this responsibility which has given them the position which they hold. Now, whilst we can easily understand how those who have entered their fellowship but who practise as Dentists will desire that the latter profession should be joined on to the former, yet it has always seemed to me trying to place it in a false position. It is the old story of the frog and the ox over again.

Is not the time come, as you say in last month's leader, for the rulers of the Odontological Society to do something? A considerable agitation was begun lately to get some legislative recognition. The Society, as you say, "seems" very lethargic; and a new society has been formed, containing on its list of members the names of many whom we must highly respect, but who, by the foundation of their society, seem to me to be repeating in a worse form the error which led to our present trouble, that of keeping too close to the College of Surgeons. The L.D.S. has not been sufficiently adopted to give evidence of efficiency.

The questions which this condition of things has suggested to my mind are, Could not the Odontological Society reconstitute itself? And, by putting pressure on the College of Surgeons, get the entire management into its own hands of our own education, examination, and admission to the recognised rolls of the profession? If it did so the examination would soon be a more satisfactory one and more sought after. At present in reading the list of the questions asked, one is puzzled to know *why* some were asked unless it was to prove that Dentistry was a speciality of surgery.

If we could unite in some such way, having our own affairs in our own hands, I do not doubt but that sooner or later we might attain legal recognition. Dentists have done so much original work in the science of anæsthetics, and are practically so familiar with their administration, that they have an undoubted and independent right to give them; and the community for their own safety would, I think, allow their claim to the legal recognition of an examination on this ground if on no other.

For the workman who had become familiar by practice with the mechanical department might there not be an inferior qualification, allowing him, on producing his indentures and passing a practical examination in mechanical Dentistry, a licence to practise as a mechanical Dentist only. To divide the profession into surgical and mechanical Dentists is not, I think, a tenable position. To be a good Dentist a man *must* be a good mechanic, and to try and draw a distinction in rank between a man who can put a contour gold filling in a wisdom tooth and one who can put in an obturator in a case of cleft palate is not right. But for a workman who has only acquired a knowledge at the bench to try and pass as an educated Dentist, to take fees or rank as such, is also neither endurable nor just, whilst at the same time he may be able to maintain himself honestly and usefully, if his position is well understood, by making dentures for those who cannot afford to pay the fee of the more educated practitioner.

Hoping that the present cloud may soon pass and give way to more enduring sunshine, I remain, yours truly,

F. H. BALKWILL.

LIABILITY OF DENTISTS TO SERVE ON JURIES.

To the Editor of the 'British Journal of Dental Science.'

Sir,—In corroboration of Mr. Charles Sims' letter in your last issue, will you allow me to give a case in illustration with a higher authority than that of a magistrate, as an evidence of intention of those in authority to give the privilege of exemption from serving on juries to Dentists the same as it is well known is accorded to surgeons. In the year 1860 I was served with a summons to serve as a juryman at Westminster in the Court of Common Pleas. I obeyed the mandate, but before the court was formed spoke to the assessor Mr. Campbell, saying that I wished to be excused serving, on the ground that I was in practice as a Surgeon Dentist. When the judge, Mr. Justice Crampton. entered the court, Mr. Campbell turned and spoke to the Judge, who asked, "Where is the gentleman who claims exemption?" I stood up, and his Lordship said, "On what grounds do you claim exemption from serving on a jury in this Court?" I said "that it might be within the knowledge of his Lordship that in the recent Act passed, power had been given to the medical council of the R.C.S. to institute an examination in Dental Surgery. And although it has not been so expressed in that Act, yet no doubt it was in the mind of Parliament to accord to all Surgeon Dentists as Licentiates of that College the same privileges as that given to members of the College." His Lordship said "Are you in practice as a Surgeon Dentist?" I replied that I was, He said, "And may be called on in the course of the day to give relief to any of Her Majesty's subjects that may ask you?" I answered in the affirmative. He replied "On these grounds I exempt you." Before leaving the court I was called upon to deliver up the summons in order that it might be cancelled. I mentioned this case of exemption at the Odontological Society immediately following the occurrence, and I am under the impression that it appeared in print. At the time I claimed the exemption I did not then hold the Licentiate's Diploma, but was open to take it up then, having been many years in practice. I have never since either in London or here been served with a summons and am prepared to claim exemption should it occur again. In point of law, Dentists may be wrong in claiming exemption, but they cannot be wrong in stating the above precedent should they do so.

I am, &c.,
A. M. Duff, L.D.S.

Leicester; Nov. 20th, 1876.

AN APPEAL.

To the Editor of the 'British Journal of Dental Science.'

Sir,—You were kind enough to insert in your April number an appeal on behalf of the eldest son of the late Mr. Wright for votes or interest by which to secure his election to the "London Orphan Asylum," for which he is a candidate, and several gentlemen having desired to be reminded of it before the next election I beg now to recall it to their memory, and also to gratefully acknowledge the sums already received to secure votes. The next election takes place on the 22nd of January, 1877.

The grandfather of the children, Mr. James Wright, was well known in the profession for upwards of forty years, but his decease and the early death of both parents have left the children totally unprovided for. Any further assistance either in votes or otherwise will be most thankfully received and acknowledged by

Yours very obediently,
Thos. Sexton.

165, Stanhope Street,
Hampstead Road, N. W.

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This most urgent Case is strongly recommended by

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The Hon. Miss Montague, 7, Stratford Place, and Hazlewood, Watford.
Rev. H. W. Burrows, Vicar of Christ Church, Albany Street, W.
Rev. C. Hodson, Vicar of St. James's, Hampstead Road.
Rev. — Woodhead, Curate of St. James's, Hampstead Road.
Dr. Dane, 96, Finchley Road, N.W.
Mr. T. W. Heath, Surgeon Dentist, Richmond Green, Surrey.

To the Editor of the 'British Journal of Dental Science.'

Sir,—May I hope that the subject of this letter will excuse the liberty I take in addressing you these few lines.

I have awaited rather anxiously these last months the reception of your honorable journals in the hope of finding something in their pages towards an appeal on European Dentists to congratulate their American colleagues on the occasion of the "centenary," and, at the same time, have the honour to present them something, if such should be found right, as a mark of friendship, respect, and acknowledgment we owe them for the great part they have so nobly enacted towards the advancement of the profession at large, and which has been for us a source of great profit in every sense.

As nothing has till at present been hinted to that end in any of the journals I receive, may I be allowed to ask, sir, why we should let pass by such a grand, most solemn, and unique occasion, without an effort to strengthen the ties of that growing mutual good feeling and esteem which, indeed, should exist in an unlimited sense between men practising so noble and worthy a profession as Dentistry.

No man of sense would attempt to deny that the greatest good has followed such friendly intercourse for both practitioner and public.

May that friendly spirit be for the coming century the power that shall guide us, so we may be sure that under its influence the common good that cannot fail to ensue will be incalculable. I am, &c.,

St. Petersburg; Nov. 18th, 1876. H. J. M.,

P.S.—Am ready to subscribe Ten Guineas.

To the Editor of the 'British Journal of Dental Science.'

Sir,—I sent you a paper on the first of this month on the advisability of extracting any diseased teeth of the permanent set at an early age, and having hinted at the evil effects connected with the use of the fork in eating, I now enclose an extract (since handed me by a friend) from Winwood Read's 'Martyrdom of Man,' 2nd edition, p. 30, by which those who may look on the fork as indispensable, will see that the clergy, the most refined and luxurious of all classes, preached against its use three hundred years ago.

I am, &c.,
David Fletcher.

2, Wynyard Square, Sydney, New South Wales; Sep. 20th, 1876.

Extract alluded to.—"In the England of Elizabeth it was declared from the pulpit that the introduction of forks would demoralise the people and provoke the Divine wrath."

DENTAL REFORM.

To the Editor of the 'British Journal of Dental Science.'

Sir,—Permit me through the medium of your journal to ask what progress the Dental Reform movement has made. It is now fifteen months since the inaugural meeting took place here, and if anything has been done I think it high time the committee or rather the executive committee, should give an account of their stewardship.

I have heard that there have been three meetings held, and not a word as to what business has been done has appeared in the journal, which seems to me very singular as, it is the only medium in which we expect to be posted in matters affecting our interest.

This is a most important movement, and I hope we have not made a mistake in selecting our representatives

I am, &c.,
C. Farnsworth.

96, Oxford Street, Manchester;
Nov. 24th, 1876.

[We have no doubt the Hon. Sec. to the Dental Reform Committee, J. S. Turner, Esq., will reply to any inquiries addressed to him. We can publish no information on the subject that is not communicated to us by him officially.—Ed. B. J. D. S.]

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W., BEFORE THE TWENTIETH day of the month, and duly authenticated by the name and address of the writer.
2. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
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5. We cannot undertake to return communications unless the necessary postage stamps are forwarded.

ANSWERS TO CORRESPONDENTS.

"A. S."—Your communication will appear in the January issue.

"B."—The matter is in hand.

"DENTAL."—His initials are A. H.

"INQUIRER."—The Calendar will appear in the January No., 1877.

C. J. PEACOCK.—Thanks for paper forwarded.

Communications have been received from Thomas Sexton (London), James Smith Turner (London), A. M. Duff (Leicester), C. Farnsworth (Manchester), Frank A. Huet (Manchester), James Merson (London), Henry B. Mason (Exeter), David Fletcher (Sydney, N. S. W.), Felix Weiss (London), W. Spencer Watson (London), F. H. Balkwill (Plymouth), Tullius W. Fay (Liverpool), "H. J. M.," Thomas Fletcher (Warrington), The Dean of the Dental Hospital of London, Andrew Wilson (Edinburgh), Christopher Heath (London), M. L. Bell (London), Edwin Saunders (London), Felix H. Weiss (London).

BOOKS RECEIVED.

'Transactions of the Odontological Society.'
'Le Progrès Médical.'
'The Pennsylvania Journal of Dental Science.'
'The Chemist and Druggist.'
'L'Odontologia Revista, mensile sui progressi Della Chirurgia E. Della protesi Dentale.'
'Hull News.'
'The Freeman's Journal.'
'The Dental Cosmos.'
'The Dental Register.'
'Johnston's Dental Miscellany.'
'L'Année Médicale Journal de la Société de Médicine de Caen et du Calvados.'
'The Australian Town and Country Journal.'
'Transactions of the Odonto-Chirurgical Society.'
'Yorkshire Post.'

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